

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.

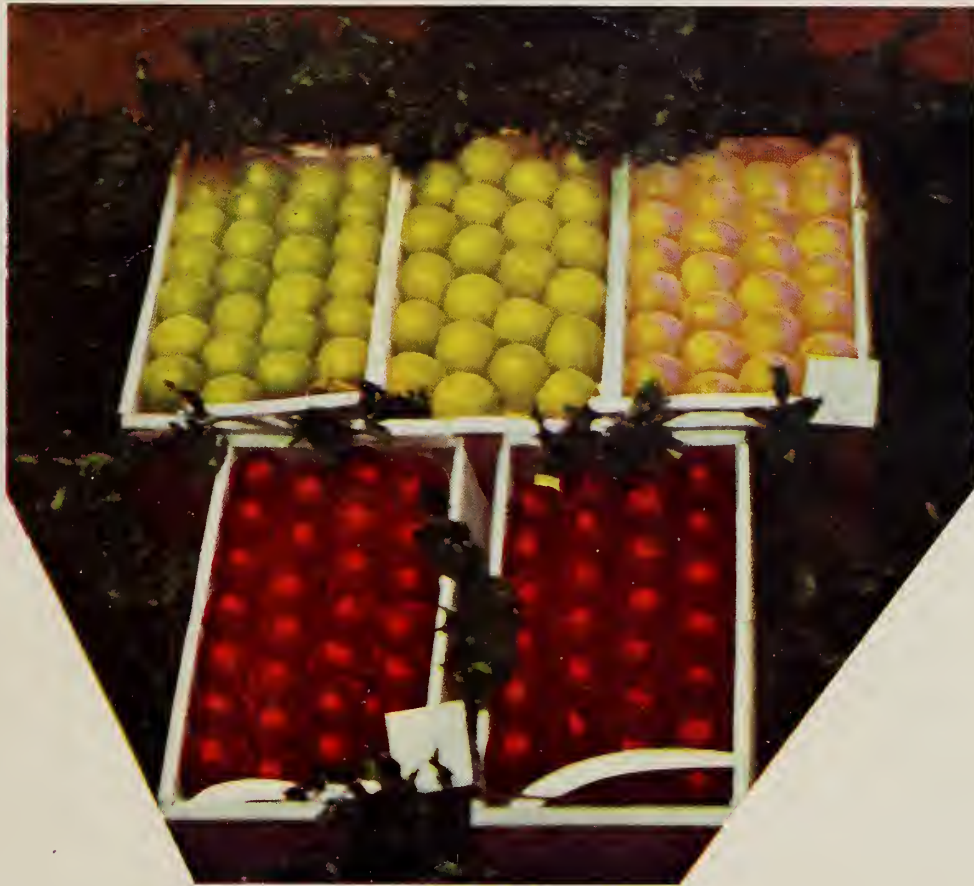


# BETTER FRUIT

VOLUME X

NOVEMBER, 1915

NUMBER 5



Five-box exhibit of apples packed by a nine-year-old daughter of the Editor of "Better Fruit," winning a first prize at the Oregon Horticultural Exhibit, and also at the Hood River Apple Show.

"Health's best way  
Eat apples every day"

Buy them by the box

"An apple a day  
Keeps the doctor away"

BETTER FRUIT PUBLISHING COMPANY, PUBLISHERS, HOOD RIVER, OREGON

Subscription \$1.00 per Year in the United States; Canada and Foreign, Including Postage, \$1.50.

Single Copy 10 Cents



# Prince Albert is such a real smoke



you can't any more sum up the pleasure it gives until you smoke some than you can tell how smart a man is from the size of his head. Takes a try-out to learn the *inside* facts!

You get that old pipe out of storage or locate some makin's papers, buy a supply of P. A.

*and fire-up*, for you can smoke like sixty—tender tongue or not—with nothing to think about but joy-joy-joy! The patented process fixes that, and *cuts out* bite and parch!

No matter how long you've sworn off the pipe line or shied on rolling your own cigarettes, you cut-loose like a man on what we tell you. Because, *we know* how good Prince Albert is; how much happiness it will hand you; how sincere will be your hearty, honest appreciation of its merits!

Prince Albert has revolutionized smoking-satisfaction for thousands of men! It has brought back countless pipes into the sunshine; *it will give you* more fun than you've had since those hickory-stick-school-days! Today, you lay in your supply of

**YOU** make fast tracks down the turnpike, for all stores sell Prince Albert in the toppy red bag, 5c; tidy red tin, 10c. Quick like you're set for the long pull, you'll want a bigger supply, so you'll find P. A. in handsome pound and half-pound tin humidors and in that mighty clever pound crystal-glass humidor with sponge-moistener top that keeps Prince Albert fit-like-a-high-top-thoroughbred!

R. J. REYNOLDS  
TOBACCO CO.  
Winston-Salem, N. C.

**PRINCE** the  
national  
joy  
smoke **ALBERT**



**SIMONS, SHUTTLEWORTH & CO.**

LIVERPOOL AND MANCHESTER

**SIMONS, JACOBS & CO.**

GLASGOW

**GARCIA, JACOBS & CO.**

LONDON

Agencies and Representatives in Every Important European Market

**European Receivers of American Fruits**

FOR MARKET INFORMATION ADDRESS

Simons, Shuttleworth & French Co.  
204 Franklin Street, New YorkSimons Fruit Co.  
Toronto and MontrealSimons, Shuttleworth, Webbing Co.  
46 Clinton Street, Boston

OUR SPECIALTIES ARE APPLES AND PEARS

**FOR QUALITY SALE**

See our "Ad" in the PACKER. We are selling to the trade all over the United States under this heading. Would you like some of your fruit placed on the same basis?

**BOX APPLES**

AUCTION, PRIVATE OR F. O. B.

We want to hear from every grower in your section who has fruit of quality

Ship Direct  
One Commission**SGOBEL & DAY, New York**

The Old Reliable

**BELL & CO.**

Incorporated

WHOLESALE

**Fruits and Produce**112-114 Front Street  
PORTLAND, OREGON

W. H. DRYER

W. W. BOLLAM

**DRYER, BOLLAM & CO.**GENERAL  
COMMISSION MERCHANTS

128 FRONT STREET

PHONES: MAIN 2348  
A 2348

PORTLAND, OREGON

**Mark Levy & Co.**COMMISSION  
MERCHANTS**Wholesale Fruits**121-123 FRONT AND  
200 WASHINGTON ST.

PORTLAND, OREGON

**LEVY & SPIEGL**

WHOLESALE

**FRUITS AND PRODUCE**

Commission Merchants

SOLICIT YOUR CONSIGNMENTS

Top Prices and Prompt Returns

PORTLAND, OREGON

**STORAGE**Ship your Furniture  
to us to be stored  
until you are located**TRANSFER & LIVERY CO.**  
Hood River, Oregon**Orchardist  
Supply House****Franz Hardware Co.**

HOOD RIVER, OREGON

**Richey & Gilbert Co.**H. M. GILBERT, *President and Manager*

Growers and Shippers of

**YAKIMA VALLEY FRUITS  
AND PRODUCE**Specialties: Apples, Peaches,  
Pears and Cantaloupes

TOPPENISH, WASHINGTON

Established 1893

**W.P. KRANER & CO.****Importers and Tailors**

2nd Floor Couch Bldg.

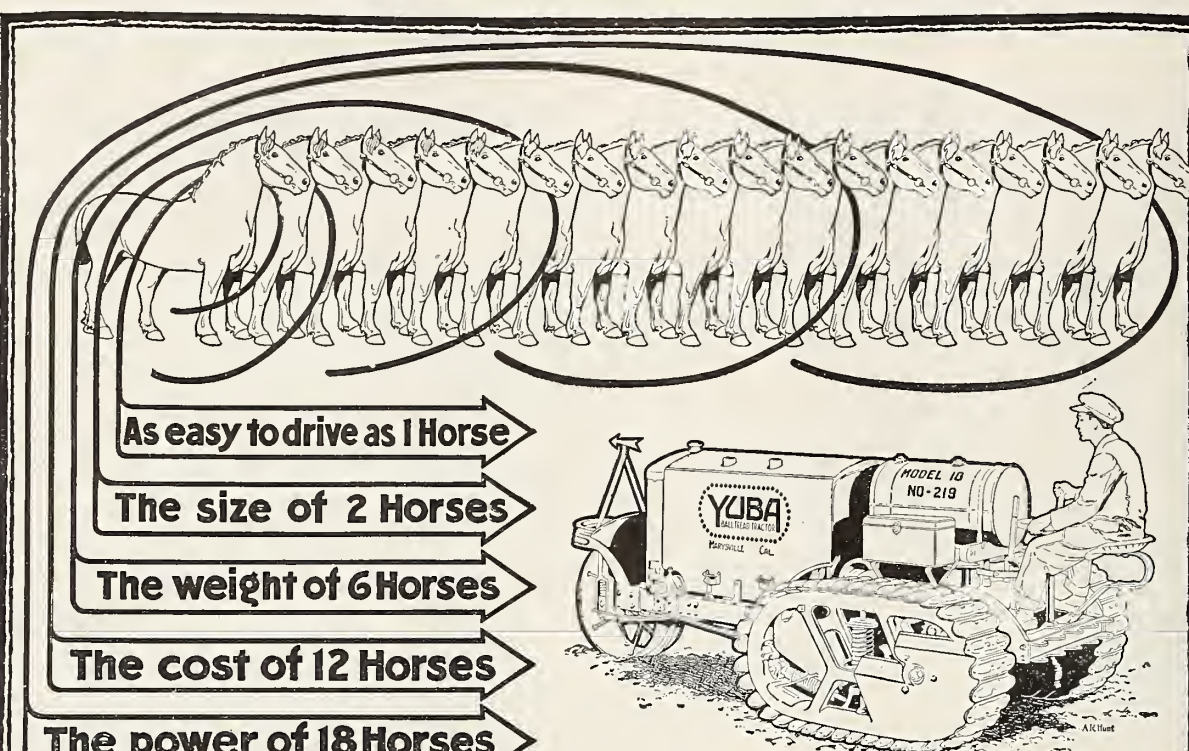
109 Fourth Street

Portland, Ore.

Geo. E. Kramer

C. W. Stose





As easy to drive as 1 Horse

The size of 2 Horses

The weight of 6 Horses

The cost of 12 Horses

The power of 18 Horses

YUBA BALL TREAD TRACTOR  
MODEL 10  
NO-219  
MARYSVILLE CAL.

## THE YUBA BALL TREAD TRACTOR

is comparable to horses in weight, size, cost and power. If you consider the distinctive mechanical features, the high-grade material and the skilled workmanship that have been built into the YUBA, it is without comparison.

The combination of the comparable and the incomparable have gained for the Yuba Ball Tread Tractor a reputation second to none.

### THE YUBA CONSTRUCTION CO.

Factory at Marysville, California.

433 California St., SAN FRANCISCO, CALIFORNIA

**THE YUBA**  
BALL TREAD TRACTOR

THE YUBA CONSTRUCTION CO.  
Department C-3

433 California Street,  
San Francisco, California

Gentlemen:

Kindly send me a copy of your booklet "The Yuba Ball Tread Tractor."

Name .....

P. O. Box .....

Town .....

State .....

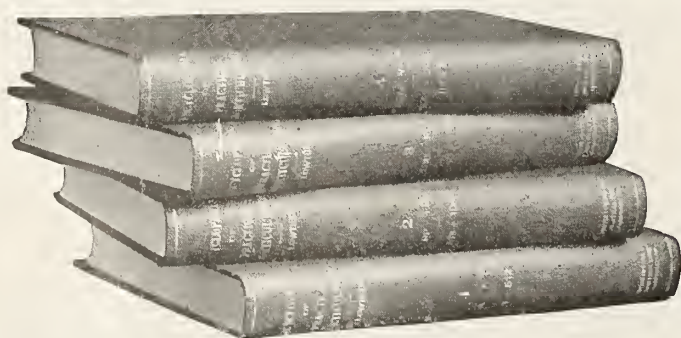
Size of Farm.....acres.

#### CHECK MAIN CROP RAISED

Fruit ..... Rice .....

Grapes ..... Alfalfa .....

Grain ..... Hay ..... Hops .....



## Encyclopedia of Practical Horticulture

"JUST WHAT WE HAVE WANTED"

A SCIENTIFIC work written in plain language and devoted to practical ends.

The only work of the kind now complete and up-to-date. A thorough manual of fruit and vegetable growing, covering every practical feature. Plant troubles, the fullest ever listed in one work with every remedy. Planting, pruning, spraying, harvesting, packing, marketing—all the methods so successfully practiced in the Northwest. Statistics of the fruit and vegetable business. All carefully indexed. Four volumes, 2,064 pages, 700 splendid halftones, drawings and colored plates. 200 contributors.

"Every grower should have it, for between its covers may be found the answer to practically every horticultural problem with which he will sooner or later be confronted."—E. K. CARNES, State Commissioner of Horticulture, Superintendent Natomes Consolidated, Sacramento, California.

Write for circulars and prices to "Better Fruit," Hood River, Ore.



# BETTER FRUIT

AN ILLUSTRATED MAGAZINE PUBLISHED MONTHLY IN THE INTEREST OF MODERN, PROGRESSIVE FRUIT GROWING AND MARKETING

## Pruning Young Trees

By Professor C. I. Lewis, Oregon Agricultural College, Corvallis, Oregon

**M**ANY orchardists growing young trees have been disappointed with the results they have obtained from pruning. While these disappointments may be due, on the one hand, to a lack of knowledge of some of the fundamental principles underlying pruning, on the other hand, we believe that a very large percentage of the dissatisfaction is due to the fact that the grower has been expecting too much from pruning alone, and has failed to realize the great importance of other orchard practices, such as irrigation, tillage and the maintenance of soil fertility.

No matter how skillfully we prune for fruitfulness, unless we have such soil conditions as to furnish sufficient food and moisture at the right time to develop good, strong buds, we should not expect to secure satisfactory results. Again, we must realize that soil, elevation and climate are factors which have a very close relation to pruning. Likewise, the variety question is always to be taken into consideration. For example, the pruning of Jonathans in Southern Idaho, at an altitude of 2,000 feet, on a silt loam, is an entirely different problem from that of pruning Yellow Newtowns in Western Oregon on a heavy soil at an elevation of 100 feet. While the fundamental principles underlying the pruning of these two trees may be the same, the application of these principles to the two may be radically different.

We need, first, to form a clear understanding of what these principles are, and, second, to study more closely than we ever have in the past the application of these principles to our individual orchards.

### The Three Types of Trees

There are three types of trees grown here in the Northwest, the so-called open, globe or vase-shaped tree, the center-leader type and the modified-leader type.

In the vase or open tree three to five branches are chosen to form the framework of the tree; any tendency of a branch to assume the lead is suppressed; no leader being allowed to grow, each of the three to five branches is given equal prominence in the tree. This tree was borrowed from the French and has been modified in this country to suit our special needs; for example, in parts of the Middle West and in California the tree is allowed to carry a large number of laterals, summer pruning or shearing being employed to force out more laterals so as to shade the branches from sun scald.

A dense, compact tree is the result. Here in the Pacific Northwest we seldom use the term "globe" or "vase," but almost always call it the open tree. Instead of shearing to produce shade, our growers prune out and keep the tree open to admit more light. The general framework, however, of the California and Oregon types is the same. Our orchardists claim that the advantage of the open tree is that it allows more light to enter the tree, thus causing a better coloring of the fruit; and, second, it produces a tree that is broad and spreading and easy to keep low-headed. The objections to this tree are, first, that it is generally structurally weak, the scaffold branches issuing at one point, thus making weak crotches, and if one branch breaks out the tree may be ruined; second, this type of tree is used too generally, as it is not adapted to all varieties under all conditions that are found here in the Pacific Northwest.

The so-called leader tree has been used largely in the East on the Atlantic Seaboard, and is used somewhat on the Pacific Coast, especially in British Columbia. There are a few orchards here in the Pacific Northwest where the growers believe the leader to be the

best type. With the leader tree, the center branch is always allowed to have the ascendancy, and the tree grows more or less to the true pyramid. The growers obtain very large trees. It is very difficult, however, to keep them low-headed and to keep them open, but they are probably stronger trees, there being less breakage from this type of tree than from the so-called open tree.

The third type of tree is the modified leader. In this type we start the trees exactly as though we were going to grow the center leader, but, beginning from the second to the fifth year, the leader is suppressed. The advantages of this type of tree are that it allows us to space the branches well, to build strong crotches and main scaffold limbs, and at the same time allows us to keep the tree relatively close to the ground. This type of tree is growing in favor where it has been tried throughout the Northwest.

We would caution the growers, however, that with any of these types of trees, weak trees or strong trees can be built, and also that very bushy or open trees may be attained with any one of the three systems.

The type of growth of trees in your locality may determine to a certain



FIGURE 24—Young Yellow Newtown apple tree before and after summer pruning. Photograph taken in August, 1912.





FIGURE 25—Three-year-old Lambert cherry tree before and after summer pruning early in July.

degree what system you should use. For example, we wouldn't grow the Wagener ordinarily as an open type of tree. It is rather an upright grower for a few years, but later becomes a feeble grower. On the other hand, we should not think of growing varieties like the Tompkins King or Northern Spy as center trees. They shoot up too straight, are too big and are too hard to control. The Yellow Newtown is too often pruned as a typical open tree, and on light soils becomes very weak when twelve or fifteen years of age. A modified leader, or in some cases even the old-fashioned leader, would be better with the Yellow Newtown. On the other hand, on some very strong loams, the Yellow Newtown can be handled very satisfactorily when grown as an open or globe-shaped tree, provided we take a little care in spacing the branches carefully the first two or three years.

#### The Height of Head

The height of head is only a relative term. One man would say that thirty inches was a low-headed tree; another man would say that this was extremely high. The Pacific Coast grows low-headed trees. We have found by experience that these are the easiest to care for, that they are the most economical for thinning, harvesting, spraying and pruning, and that we can shade the trunks and main scaffold limbs better with this type of tree than with a high-headed tree. In parts of the Inland Empire they often head their trees very low, about eight or nine inches. Many of the Jonathans in the Rocky Mountain district, and in certain portions of Idaho, Eastern Oregon and Washington, are headed in this way and are giving satisfactory results. Under such conditions they must protect the trees as much as possible

against sun scald. However, in Western Oregon we would consider 20 to 25 inches a better height of head. Many growers have felt that about 20 to 25 inches is the proper height for apples and pears. Peaches should be headed very low, as low as they can be grown. Cherries should be headed at about 25 inches. Prunes should be headed at about 30 to 35 inches. We used to believe that walnuts should be headed very high, 7 or 8 feet, and no laterals allowed to grow the first few years, but we are finding this was a mistake, and that about 35 inches will make a splendid head for walnuts.

#### Season for Pruning

Here in the Northwest, in speaking of seasons for pruning, we generally only consider two seasons, namely, the winter and summer. We receive many letters in regard to early fall or late spring pruning. There is no question but that in the Northwest, where mild winter conditions prevail, winter pruning may be done safely most years at any time when the trees are dormant. In those sections of severe winter conditions, we would advise delaying the pruning as late as possible before the growth starts in the spring. Very rarely would we advise fall pruning in the Northwest, unless one has such a large acreage that it is going to be impossible to complete it unless the pruning is commenced early in the season. If it becomes necessary to prune trees in the fall or very early winter, we would suggest that the growers prune the older trees first, leaving the younger trees for the last pruning. We would caution against pruning trees when they are frozen, and would advise delaying pruning until freezing weather is over. Much heart rot and dieback has resulted from pruning frozen trees. It is possible to prune trees somewhat even after they come out fully in the spring. This is especially true with peaches, and will be discussed in another section of this article.

As regards summer pruning, this is becoming of such interest and importance that we shall treat it under a special head.

#### Three Lessons to Learn in Pruning Young Trees

There are three great fundamental underlying principles connected with the pruning of young trees. You might say that there are three lessons, and that if these are mastered the problem



FIGURE 26—At left: Vigorous five-year-old Wagener tree pruned in July. Photograph taken in October. Note that there has been a vigorous response of new shoots averaging fully one foot in length as a result of the summer pruning. At right: Five-year-old Wagener apple tree of less than average vigor pruned in July. Photograph taken in early October. There has been practically no growth response as a result of the pruning.



of pruning young trees becomes rather simple, but unless they are mastered it is difficult to develop strong, well-balanced young trees.

**Lesson 1. To Choose and Space the Scaffold Branches.**—If you grow an open or modified leader type of tree, four or five branches are what we recommend. If you grow the typical leader tree it does not make as much difference, as from year to year new branches are added. We prefer here in Oregon the four or five-branched tree. While it may be true that the three-branched tree will produce three branches that average larger in diameter than if four or five are allowed to grow, nevertheless we feel that the three-branched tree is a dangerous one; that it is structurally weak; that if you lose one of the three branches you have practically a ruined tree; whereas, with four or five scaffold limbs, you can lose a branch and still balance the tree in such a way as to save it. The first lesson, then, is to choose four or five well-spaced branches, having them issue in a whorl around the tree, if possible, and having them as far apart as they can be conveniently spaced. The farther apart they are spaced, the stronger and better will be the trunk and the better the tree obtained. To do this you must not neglect the tree as soon as it is headed, but must watch it very carefully the first month or two after it is set out. It will be necessary to rub certain undesirable buds off, to remove certain undesirable branches, or possibly to suppress from time to time certain branches which tend to run away with the tree. By observing these simple rules you can build a stronger tree. It is for this reason that we often advocate that instead of cutting the tree at 20 inches at the time it is set, cut it 25

or 28 inches, and then space the branches from as near the ground as you can get them up to the top of the trunk. However, if you cut the tree at 25 or 28 inches and then go away and leave it you will often find all the branches will develop near the top of the trunk and the tree will be weak. It is only by careful watching that the extra increase in height of head can be made of any material advantage.

**Lesson 2. To Keep Main Branches or Sections of the Tree Properly Dominant.**—If one branch tends to grow at

the expense of the rest of the tree the weaker branches gradually become side branches to the two or three remaining stronger branches. If proper pruning is done this can be obviated. We find that the average pruner does one of two things. He may be among the group that cuts the tree level across the top, so he has a plain surface. This will never build a strong, well-balanced tree, because in doing this you pay no attention to the relation of one branch to another. The second group of pruners is apt to cut the weakest wood most and the strongest wood the least. They have heard that the more we cut the wood the more it grows; therefore, if wood is weak and we cut it back it will grow stronger. It is true that the more a tree is pruned back as a whole while dormant the more will be the resulting growth; that heavy heading in of a tree means a heavy after growth. This, however, has to do with the trees as a whole and has little to do with the relation of one branch on a tree to another. If you have a strong branch in close proximity to a weak branch the best way to strengthen the weak branch is by cutting back the strong. The development of the weak branch will be in proportion to its leaf and branch area; if there is a large amount there will be a heavy demand on the sap, and the weak branch will develop. By limiting the branches and leaves on the strong branch you restrict its growth; as a result the following year there will be less discrepancy between the development of the two branches and a continuation of the practice should lead to a balance between the two. The heading back should be done, then, not so much from the point of view of the tree as a whole, but from the point of view of the relation of the branches to each other.



FIGURE 28—At left: Five-year-old Wagener apple tree which was summer pruned in July. Photograph taken the following January. Note the amount of after-growth, indicating that the tree was pruned at about the right period. A splendid type of modified leader. At right: Same tree after winter pruning. Note the light amount of wood which has been removed in thinning out; almost no heading back.



FIGURE 27—At left: Five-year-old Yellow Newtown apple tree which was pruned the previous summer. Note length of shoots which resulted from summer pruning. At right: Same tree as shown at left after winter pruning. Note that the pruning has been light. This tree is reaching the critical period when it should commence to bear. Heavy pruning might keep it from bearing.





FIGURE 29.—Balance in pruning. Note at AA equal cutting has resulted in nearly equal strength of branches; at BB unequal cutting has resulted in completely destroying such balance, making a stronger crotch.

Cut the strongest branch the hardest; cut the second branch in vigor not quite so much; the third in vigor still less, until you come to the weakest branch, which should be cut the least. It is only by suppressing the strong branches, limiting the number of leaves and buds that they have, that you can possibly hope to encourage the weaker branches. If you wish to grow a modified tree, or leader-type tree, the only difference we would make in this pruning would be that we should choose one branch for a leader and not cut it back quite so heavily as we should with the open tree, simply letting it have enough of a lead to maintain that position. Other than that we should prune all the branches the same as directed. We can do a great deal of so-called corrective pruning. That is, we may have a tree four or five years old and notice that two of the scaffold branches are weaker than the rest of the tree, consequently we would like to encourage these two branches to grow stronger and larger. To do this, prune these two very lightly and prune the other parts of the tree more heavily, and thus encourage the two weaker branches.

Lesson 3. To Avoid the Sharp-Angled, Equally-Balanced Crotches.—If we examine the average scaffold branch of a tree carefully, from the time it leaves the main trunk up to its last year's growth, we shall observe that it has been developed much along this order. The first year the branch was cut back it forced out a number of laterals. All the laterals except two were removed. These two were cut equally and in most cases were not spaced very far apart. The next year on each one of these two the same treatment was repeated. Two branches were chosen and these were cut equally. The result is that the branches all over the tree are in pairs, of equal strength, and form very sharp forks. Now, this makes a weak branch, one which will break very easily, as the stress and strain all come at very critical points, namely, at the numerous balanced crotches. To avoid this condition of a tree, treat each one of your main branches as a leader. This means that when you choose two branches, at the first you will choose them as far apart as you possibly can, and, second, in pruning these you will cut one harder than the other. Thus one will

become a leader and the other a side branch. If you continue this, the whole branch becomes a strong leader, with a great many side branches, which distribute the strain in such a way as to reduce the breakage to a minimum.

#### Classes of Non-Bearing Trees

For convenience of discussion, we may divide the young or non-bearing trees into three classes: First, those trees from one to four years of age. This is the formative period, the body-building period of the young tree. Second, the period from four to seven years of age. I have called this the critical age. It is a transition period from the body-building, on the one hand, to the heavy-fruiting on the other. With Yellow Newtowns, Baldwins, Winter Nelis, Comice, and many others we could mention, the pruning at this time will determine to a very large degree the fruitfulness of the trees for a number of years to come. The third class or group of trees are those from seven to twelve years of age, which have reached the bearing age, but as yet have not borne a commercial crop. Before taking up the details of pruning these three classes of trees, summer pruning and its relation to such trees may be considered.

#### Summer Pruning as Adapted to Young Non-Bearing Trees

During the past two years we have heard much about summer pruning, and with many summer pruning has become a fad, and some expect marvelous results. While summer pruning is not new, it is true, however, that it has been more generally used the past few years than formerly, and like everything that is just coming into general practice, is being overdone. Many people are expecting too much from summer pruning.

Let us consider first the summer pruning for our young trees during the formative period, that being the ages from one to four. In many cases not much pruning will be done during the first summer of the tree's life, as the trees often do not make very much growth the first season, but where they do make a vigorous growth and make it by the middle of June or early July it will often be found to advantage to head the trees at that time, cutting them back just about the same way that you would cut them back the following spring. That is, if you have a long terminal growth, 12 to 30 inches in length, cut it back to the point where you desire to force out new laterals for the future body building of the tree. Now, you may have a tree that is running to one or two branches at the expense of all the others. It would be well to pinch back these strong branches so as to hold them back for the time being and thus encourage the weaker branches to grow. By the second year nearly all these trees can be greatly benefited by summer pruning. This may come any time from the latter part of May up to the middle of July, generally about the middle of June. It consists of cutting back the



rank terminal growth so as to force out the laterals and allow them to make a good growth and become hardened before fall. In this way you will gain a whole year in the framework of your trees. A good practice to follow with such trees is to do most of the heading back in June and most of the thinning out in March or April, or whenever the winter pruning is done. However, should the trees after they are pruned in June make such a rank growth that they need some topping back again the following spring, you should by all means do so. In nearly all cases it will be advisable to do some topping back of the terminals, or else the terminal bud will incline to continue this growth, producing a long leggy branch. If no topping is done on these shoots in spring it will be necessary to give them a heavy heading back in summer, to prevent their becoming too long before producing desirable laterals. You should remove from these young trees, during the summer time, any undesirable growth, branches which you know will never be of any value to the tree and are growing at the expense of some branch which should be developed. We would caution, however, against the too strenuous thinning out of young trees. We are of the opinion that we have overdone the thinning out of lateral branches.

This pruning which is given to these young trees, while it does not as a rule directly induce fruitfulness, will tend to bring the trees up to the critical period in much better condition than otherwise, since it tends to balance the tree; and since it distributes the pruning over two periods of the year, it eliminates the necessity for very vigorous pruning which so many growers give trees. The heavy winter pruning given young trees serves as a stimulus and often causes too much vegetative growth.

Some growers are opposed to summer pruning on the grounds that such pruning weakens the tree, that it is devitalizing, that it is unwise to remove any of the leaves as they are the "lungs" and manufacturing organs of the tree. We feel that it would be only in very extreme cases that summer pruning would ever be devitalizing, and certainly not where one makes the single summer pruning as already recommended. Such pruning in some cases might give increased vigor; in others very little difference will be noted; while in still others the growth may be modified to the extent that there is less vegetative growth, but even in the last case there is modification rather than devitalization. The result of a single summer pruning as recommended for these young trees is not so much a question of vigor as it is a question of change in direction of growth or energy. The clipping back of the terminal, forces the growth into desirable new lateral framework rather than into a useless additional terminal growth. There are cases where frequent summer pruning at short in-



FIGURE 30—An example of unequal growth. Branch A is growing at the expense of the other branches in the tree and should be suppressed.

tervals during the summer has a tendency to check or dwarf a tree; for example, in growing dwarf trees we must not only have a dwarfing stock but we must practice frequent pinching back of shoots. Again, we have seen walnut trees dwarfed by removal of all lateral growth for a period of years. These last two cases, however, are extreme and represent excessively frequent pruning. The greatest danger of devitalizing young trees does not come from a single summer pruning, but rather from allowing too heavy bearing of young trees.

We shall now consider summer pruning as related to our second class of trees, namely, those from four to seven years of age. These trees have now gone through their formative period and should have good trunks and scaffold limbs, and should be approaching that period when they can begin to bear heavy crops. We shall modify summer pruning for these trees, as compared with the younger trees. In this case we are to work with the idea of trying to induce fruitfulness

directly if possible. The pruning will generally come considerably later with these older trees. There is no definite time to set. We recommend, however, that the pruning be done at the time the terminal buds are forming on the ends of the shoots. You will note the leaves are beginning to get larger on the ends of the twigs, and if you will look closely you will see that the terminal bud is forming. At that time, which in the Willamette Valley, for example, is generally about the middle of July, we cut back the terminal growth, cutting it back to the point where it is desired to force out new laterals for another year's growth. The cutting at this time seems to cause a thickening of the branches, probably an accumulation of tissues around the buds, and with some varieties, probably, will lead to direct fruiting the following season. With others, however, it will simply tend to keep the trees in balance, and probably encourage earlier fruiting than would otherwise be true. That is, your results may come in two or three years rather than in one year. If this prun-





FIGURE 31—A good example of proper balance between branches. Note that wherever there is a crotch in most cases one branch is stronger than the other. At AA is a bad fork due to even cutting.

ing is done at about the right time very little secondary growth will take place, and what does will naturally be very small. Of course we realize that in many cases these trees four to seven years of age do not harden up until late in September or even in October, and then it would be too late to do any pruning to advantage. Even though summer pruning with these trees might not lead to an increase in fruiting the following summer, it would be a dis-

ting help in keeping the trees in balance and in eliminating the excessive cutting which might otherwise be necessary the following spring.

We shall consider for just a moment the trees which are from eight to ten or twelve years of age which should be in fruiting, but have never borne. These trees have almost always been over-stimulated. They have been over-pruned, over-fertilized, over-irrigated; they have had some one stimulus or a combination of stimuli given them which results in forcing back wood growth, producing heavy large leaves, but little or no fruit. The remedy is to remove the stimulus, whatever it may be, and prune several times a year.

Summer pruning for such trees will come probably more about the time you should prune the very young trees; that is, along in June. At each time when the terminal growth has reached such a length that you can see it is going to become excessive, it should be cut back and the trees thinned out somewhat, and the following spring a little more thinning and pruning out could be done to advantage. The application of summer pruning to these trees

should be largely merely a distribution of the pruning over two periods, thus avoiding an excessive pruning. Only in very rare cases could you expect direct results from such pruning. Results will come indirectly in bringing the trees back to their normal balance. It often becomes necessary to reduce the amount of tillage or irrigation given such trees and in cases where the growth is abnormally excessive it is sometimes found advisable even to check this by growing crops between the trees, such as hay or grain.

Continued in next issue

It is reported that Mr. H. F. Davidson states that the guarantee-fund plan which was instrumental in advancing the price on pears in Yakima Valley, made \$10,000 extra money for the pear growers. Prices on pears were advanced from \$15.00 to \$17.50 per ton; and by the box went from 65 cents to 75 cents to 85 cents. Bartlett pears, which started low at the early part of the season, the latter part of August were reported as selling at \$1.00 per box in various districts throughout the Northwest.

The cherry crop of the Northwest has brought excellent prices this year. Canneries have paid five cents per pound for Royal Anns, or \$100 per ton. One cherry grower in Hood River, J. R. Nunamaker, realized considerably over \$4,000 on four acres of cherries.



## Now is the Shooter's Time

The call of the woods, the fields and the marshes is not to be denied.

Get ready! See that your scatter-gun is oiled and easy. Get shells loaded with

**DUPONT**

## SHOTGUN POWDERS

Dupont :: Ballistite :: Schultze  
Du Pont Black Sporting Powder

Each has its good points—each has its friends and all are bound to get desired results if your aim is right.

Write for booklet 534-S

E. I. Du Pont de Nemours & Company  
Wilmington, Delaware

# THE SIZE

is given on page 4.

There are also other points of interest to orchardists.

### Pumps For Every Purpose

For deep wells, shallow wells; double-acting, single-acting; power outfits, etc. 300 styles and sizes—\$3 to \$300. Backed by 65 years' experience. Expert advice free. Ask your dealer to show you.

**GOULDS**  
**RELIABLE**  
**PUMPS**

Tested and guaranteed. Send today for our new book, "Water Supply for the Country Home."

**The Goulds Mfg. Co.**  
Schenectady, N. Y.

Branches:  
Houston  
Chicago  
Boston  
Atlanta  
New York



All Isn't  
Gold  
That  
Glitters

**BUT**

a glitter  
conveys a  
better  
impression  
than a  
coat  
of rust



If you think enough of the goods INSIDE of your package, then by all means put a high class covering on the OUTSIDE.

**BEST QUALITY ONLY**

Labels, Cartons, Posters, Corrugated Containers

**SCHMIDT LITHOGRAPH CO.**

SAN FRANCISCO

Los Angeles, Fresno, Portland, Seattle, Salt Lake City

## Horticultural Exhibit Panama-Pacific Exposition

[Editorial Bureau, Panama-Pacific International Exposition]

**T**HAT the horticultural exhibit at the Panama-Pacific International Exposition at San Francisco will far surpass in magnitude and general scope all previous exhibitions of the kind held anywhere is the opinion of experts who have examined the exhibit in detail. Fourteen acres will be devoted to horticultural purposes, five of these covered by the Palace of Horticulture, a \$341,000 structure with a great glass dome 152 feet in diameter as the hot-house center, and nine acres of outside garden. The horticultural exhibit, within the palace and without, will include representative displays touching practically every important phase of horticulture as it is carried on in China, Japan, England, Scotland, Ireland, Australia, New Zealand, Canada, The Netherlands, France, Italy, Argentina, Cuba, the Philippines, Hawaii, and the following states of this continent: Oregon, Washington, Utah, Idaho, Montana, Nevada, California, Colorado, Missouri, Kansas, Arkansas, Illinois, Iowa, Indiana, Ohio, Louisiana, New York, Massachusetts, Rhode Island, Pennsylvania, New Jersey, Florida and Maryland.

As a whole the horticultural exhibit of the exposition has been planned with a fivefold purpose: to appeal with equal interest to the tourist, the visitor, the student, the business man and the investor. The tourist will see the pride and the glory of the soil from the other sections of the world. The visitor will be entertained by the beauty and novel wonder of all that is before him. The student will find here an unexampled opportunity to increase his knowledge on all points pertaining to the horticulture of the earth. The business man

will find the exhibits of commercial products so arranged as to permit the placing of orders on the spot. And the investor will be able to discover through actual living evidence the productive possibilities of soil from almost every section of the earth.

Every participating state and nation will have part of its display in the outside garden. The Netherlands and the State of Massachusetts will show their exhibits outdoors exclusively. Holland's unified exhibits were presented under the auspices of the National Board of Horticulture and will present the quintessence of floral culture as it is carried on by the famous growers of that country. A flowering mass of 60,000 bulbs is but an item in this gorgeous part of the exposition. Trees which have attained years of growth in their native Dutch soil will be seen here. Rhododendrons, trained conifers and numerous growing botanical specimens will be seen, all set out in a landscape effect arranged by D. T. Tersteeg, of Maarden, Holland, the most noted of the landscape architects of his country. Massachusetts' display will be representative of the state and will be presented by her most noted growers. It will be a Colonial garden designed by Stephen Child, one of the foremost of his profession in the United States. Notable features will be gladioli exhibits by Arthur Cowes, John Lewis Child and B. Hammond Tracy, the most noted gladioli growers in America. There will also be a magnificent assemblage of stately carnations, showing new varieties. The California exhibit will include an extensive showing of Luther Burbank's famous creations. The Japa-

nese garden will be a rare work of art and will hold many surprises for the exposition visitor.

In that portion of the exhibit known as the "Eastern garden" will be found a magnificent exhibition of roses from Rhode Island and Maryland, heliotropes of exquisite color and rich fragrance from New Jersey, and iris and peonies from Pennsylvania. The rose competition has excited international interest. A prize of \$1,000 has been offered by the exposition to the grower producing the finest rose, hitherto unnamed and unexhibited, but which is to be brought forth for the admiration of the world at this exposition. The prize will be awarded by an international jury of award and whatever rose receives the award will be given a name commemorative of the exposition that brought it to fame. Among the renowned rose growers who will have entries in this contest are Hugh Dickson, Belfast, Ireland; Samuel McGredy & Son, Potsdown, Ireland; E. Pernet Ducher, Venissieux-Lyon, France; Dobbie & Son, Edinburgh, Scotland; S. Bide & Son, Farnham, Surrey, England; E. G. Hill, Indiana; Brant-Hentz Flower Company, New Jersey.

In the palace the visitor will find beneath the great dome the exhibit of Cuba, myrocycus 1,000 years old, royal palms, giant tree ferns, tropical lilies, bamboo palms, breadfruit and banana trees, mangoes, guanabana, cocoanut trees and date palms in actual bearing. Hawaii, Australia and the Philippines will exhibit tropical displays, from the Philippines coming one bed of 400 varieties of orchids, all different, but blending their wealth of colors in one picturesque expanse of beauty. A feature of Japan's display will be an aquarium of gold fish, giving the typical Oriental finish to the exhibit of rare specimens from that country.

The economic section of the horticultural exhibit will also be housed in the palace, the idea here being to show plant life in its relation to actual life. A model cannery, the combined exhibit of the National Canners' Association,

### Experienced Orchardist and Farmer

with several years' experience in both Hood River and Wenatchee, wishes situation as manager of an orchard or diversified farm. Best of references. Address Otis Tetherow, R-1, Hood River, Oregon.

## Western Pine Box Sales Co.

HIGH GRADE FRUIT BOXES  
**APPLE, PEAR AND PEACH BOXES**  
Fruit and Vegetable Crates  
**GOOD SERVICE—Write us**  
**SPOKANE, WASH.**

## WANTED

a first-class experienced man to take charge of a bearing orchard, Wenatchee District. State experience and wages expected; also give references. Good position for right man. Reply XY, care "Better Fruit," Hood River, Oregon.



**MYERS**  
**HAND SPRAY POWER**  
**PUMPS**

**SPRAYING-PAINTING-DISINFECTING**

Get your orchards and trees in prime condition this Fall and they will require but little attention next Spring, for Fall spraying with a Myers Spray Pump destroys scale and similar diseases at the right time.

The MYERS POWER SPRAY RIG shown below is built for high pressure work where extensive spraying operations are carried on, and is complete with tank, tower, pump and accessories ready for engine and wagon trucks. Other types of Myers Spray Outfits include small Bucket and Knapsack Sprayers, and medium and large capacity Barrel and Tank Outfits for hand or power operation—All are proven, tested and completely equipped with Nozzles, Hose and Accessories, ready to spray.

Send today for 64 page Catalog—MYERS SPRAY PUMPS for SPRAYING, PAINTING, DISINFECTING. It shows all styles and gives Tables, Formulas and Directions How and When to Spray.

**OTHER MYERS LINES—**  
Pumps for Every Purpose, Hay Tools, Door Hangers.

**F.E. MYERS & BRO**  
ASHLAND PUMP AND HAY TOOL WORKS  
120 ORANGE ST. ASHLAND, OHIO.

## THE WEIGHT

is given on page 4.

There are also other points of interest to orchardists.

## The First National Bank

Hood River, Oregon

Capital and Surplus  
\$135,000

4% Interest Paid on Savings  
and Term Deposits

F. S. STANLEY, President  
E. O. BLANCHARD, Cashier

will be shown in operation, conducted by Dr. and Mrs. A. W. Bitting, the most noted technologists in America. The cannery exhibit will demonstrate the various processes involved in fruit canning, from the moment the fruit is received in boxes to the final detail of being crated for delivery to the grocer. There will be a comprehensive exhibit of dried fruits in airtight sanitary packages. An ingenious display of horticultural machinery will be a feature, showing everything up-to-date in the line of appliances and implements. In general the exhibits cover every detail pertaining to the soil, its cultivation and adornment.

### Destroy Insects by Fall Plowing

If you want to kill the army worms, cutworms, Hessian flies, grasshoppers and other highly injurious insects plow your fields this fall. Fall plowing, disking and harrowing within the next few weeks will break up the nests, cells and protecting cases of many insects and expose them to the rigors of winter weather. This will completely destroy many of our most injurious insects and greatly diminish the numbers of others. Fall plowing does not affect all insects alike because they pass the winter in the soil in different stages. The grasshoppers and the corn root lice pass the winter in the egg stage; the cutworms, army worms, wire worms and white grubs hibernate in the soil in the worm stage; the fall army worms, corn-ear worms and garden-web worms pass the winter in the pupa or resting stage; and the elick beetles, May beetles and potato beetles hibernate in the soil as adult beetles. Many insects are crushed and destroyed in their wintering stages by plowing and disking. Others are brought up nearer the surface, and not being able to go deeper into the soil or to construct new cases are exposed to the ravages of birds and other animals. They are also subjected to excessive cold and moisture, to alternate freezing and thawing, and are killed. Old wheat stubble fields full of volunteer wheat, weeds and grass are now harboring Hessian flies, army worms, cutworms, grasshopper eggs and plant lice, all of which may be destroyed by fall plowing. If these old stubble fields are not plowed until next spring serious injury may occur to corn, wheat and other crops in the neighborhood. The Hessian flies coming from the volunteer wheat next spring may completely destroy late-sown wheat.—T. J. Talbert, University of Missouri, College of Agriculture.

### How to Make Vinegar

The housewife, either on the farm or in the city, who makes her own vinegar may be assured of both its purity and strength if she follows certain specific directions, according to Miss Carrie Hancock of the Missouri College of Agriculture. Good vinegar can be prepared from cider. Fill a barrel or cask half or two-thirds full. A considerable surface of the liquid must be exposed

to the air. For this purpose, bore two-inch holes in opposite sides of the barrel—one near the surface of the liquid and one near the top of the barrel. Cover the holes with wire netting to prevent the entrance of flies. One of three methods may be pursued in the formation of vinegar from the cider—(1) allow the cider to stand until souring occurs; (2) add a little vinegar of good quality, or (3) hasten the process by the addition of the "mother of vinegar," a portion of the film which has developed on the surface of vinegar previously prepared. Part of the vinegar may be drawn off and the loss made good with fresh cider, using care not to break the film. The added cider will rapidly be converted into vinegar, and the process may be repeated in three or four weeks. When drawn off, the vinegar should be strained and placed in tightly-stoppered vessels—otherwise it will lose its strength.—University of Missouri.

The Pacific International Live Stock Exposition will be held in Portland at the Union Stock Yards, North Portland, December 6-11. As many fruitgrowers are going extensively into the dairying business, hogs and sheep as side lines, this exposition, which is one of the finest held in the Northwest, or anywhere else in the United States for that matter, will give every visitor wonderful opportunities to learn about stock, the care of stock, and the kind of stock that pays to raise. No fruitgrower who is raising stock or expecting to should fail to attend this show.

The Oregon Nursery Company, Orenco, Oregon, one of the largest and most progressive nurseries in the Northwest, has added a landscape gardening department, having secured the services of a specialist, Mr. H. E. Burdette, who is a practical man in this line of work, for the purpose of assisting all patrons of this company to enable them to lay out their gardens, lawns, etc., around their homes in the most attractive manner possible.

### PORTLAND WHOLESALE NURSERY COMPANY

Rooms 6 & 7, 122½ Grand Ave., Portland, Oregon

Wholesalers of Nursery Stock and Nursery Supplies  
A very complete line of  
Fruit and Ornamental Trees, Shrubs, Vines, Etc.

#### SPECIALTIES

Clean Coast Grown Seedlings  
Oregon Champion Gooseberries and  
Perfection Currants Write Now

### Caught 51 Rats One Week

Trap resets itself; 22 inches high; will last for years; can't get out of order; weighs 7 pounds. Cheese is used, doing away with poisons. This trap does its work, never fails and is always ready for the next rat. When rats and mice pass device they die. Rats are disease carriers, also cause fires. Rat catcher sent prepaid on receipt of \$3.00; Mouse catcher, 10 inches high, \$1.00. Money back if not satisfied. One of these rat catchers should be in every school building.

H. D. SWARTS, INVENTOR AND MANUFACTURER

Universal Rat and Mouse Trap

Box 566

SCRANTON, PA.



### Planting Narcissus, Daffodil and Tulip Bulbs for Next Spring

There is nothing that will beautify a lawn quite so much as a bed of tulips, daffodils and narcissus blooming in the early spring. The beds should be prepared in the fall. As a general rule bulbs should be planted in October and November, so that the roots may make a good growth before cold weather sets in. Bulbs require a moderately rich soil that is well drained. Narcissus and daffodil bulbs should be set about ten inches apart and five inches deep, and tulip bulbs should be set five inches apart and four inches deep, but this will depend largely on the size of the bulb. A good rule to go by is to cover the bulbs with soil one and one-half times their depth. When the ground freezes it is a good idea to cover the beds with a light mulch of straw or leaves, which should be removed early in the spring. After blossoming in the spring allow from six to ten weeks for the foliage to die, when the bulbs can be taken up. Shake the soil from the roots and put them in a cool place where they will ripen, until time for planting in the fall. If bulbs are wanted

for house culture the soil should be light and rich, one-third good soil, one-third sand and one-third thoroughly rotted manure, and the bulbs planted thickly, so they almost touch. As soon as planted they should be well watered and put away in a cool dry place. If the room is light they should be covered to keep them dark. If the soil gets dry water them, but not oftener than every two weeks. Bring them out after about four to six weeks, when they should be watered freely. A very good idea, if one has several pots of bulbs, is to bring them out about two weeks apart, and in this way a succession of flowers can be had all winter and spring.

The North Pacific Fruit Distributors through their manager, J. H. Robbins, state that they will control about the same percentage of tonnage this year as last year. J. H. Robbins, manager, attended the International Apple Shippers' convention at Chicago and reported the apple crop of the United States much less than last year—approximately about 50 per cent.

Mr. Wilmer Sieg, sales manager of the Hood River Apple Growers' Association, attended the International Apple Shippers' Association meeting held in Chicago in August, reporting the apple situation as much more favorable in the way of prices this year. In fact Mr. Sieg is optimistic about obtaining reasonably good prices this year.

B. A. Perham, sales manager of the North Pacific Fruit Distributors, reported in August that the peach crop would amount to 1,200 carloads, and it is also his opinion that the crop will be marketed west of Kansas City and Minneapolis.

Mr. John Steel of Parma, Idaho, who is one of the largest prune orchardists in that state, owning about forty acres in prunes and sixty acres in apples, has signed up his crop with the North Pacific Fruit Distributors.

Mr. L. J. Blot, formerly of the North Pacific Fruit Distributors, is sales manager of the Spokane Fruit Growers Co., a man credited with having splendid salesman ability and an extensive acquaintance with the trade.

The strawberry weevil pest is reported as doing extensive damage to the strawberry patches around Kennewick.

Loganberry juice has been given a great boost through the praise awarded it by William Jennings Bryan.

The pear crop of all of the Eastern States is reported much less than last year.

#### Rats.

H. D. Swarts, of Scranton, Pa., has invented a rat catcher that caught over 100 rats in a month in one establishment. See his ad. in this issue.—Adv.

### FALL SOWING

Tested Vetch, Clover, Timothy and Grass Cover Crops—Sold by Dealers Send for Price List.  
The Chas. H. Lilly Co.  
Seattle, Wash.  
U. S. A.

**LILLY'S  
SEEDS**

Mr. Shipper:

## Cold Store

—your APPLES with us in LOS ANGELES and feed out to the consuming public as market demands and PRICES SUIT.

LOS ANGELES is the distributing center of the great Southwest.

California apple crop 1,800 cars short this season.

Big Market for your Apples.

We operate the largest and best equipped Cold Storage warehouses on the Pacific Coast.

DIRECT RAILROAD CONNECTIONS — RATES REASONABLE.

We shall appreciate your business and will show our appreciation by the high quality of service we render you.

*If we can be of service to you in furnishing data on market conditions, feel free to call on us and it will be our pleasure to serve you.*

## Los Angeles Ice and Cold Storage Co.

P.O. Box 643, Station C

**Los Angeles**

**California**



### Only One Night at Sea

between

**Portland and San Francisco**

via

**"The North Bank Road"**

and the palatial SS

**"Great Northern"**

AND

**"Northern Pacific"**

**\$30 Round Trip  
from Portland**

**\$33.40 Round Trip  
from White Salmon**

**Daily till November 3**

E. A. GIBERT, Agent S. P. & S. Ry.  
White Salmon, Wash.

R. H. CROZIER, A. G. P. A.  
Portland, Ore.



# BETTER FRUIT

## HOOD RIVER, OREGON

Official Organ of The Northwest Fruit Growers' Association  
A Monthly Illustrated Magazine Published in the  
Interest of Modern Fruit Growing and Marketing  
All Communications Should Be Addressed and Remittances  
Made Payable to

### Better Fruit Publishing Company

E. H. SHEPARD, Editor and Publisher

#### STATE ASSOCIATE EDITORS

##### OREGON

C. I. Lewis, Horticulturist.....Corvallis  
H. S. Jackson, Pathologist.....Corvallis  
H. F. Wilson, Entomologist.....Corvallis

##### WASHINGTON

Dr. A. L. Melander, Entomologist.....Pullman  
O. M. Morris, Horticulturist.....Pullman

##### COLORADO

C. P. Gillette, Director and Entomologist.....Fort Collins  
E. B. House, Chief of Department of Civil and Irrigation  
Engineering, State Agricultural College.....Fort Collins  
E. P. Taylor, Horticulturist.....Grand Junction

##### IDAHO

W. H. Wicks, Horticulturist.....Moscow  
W. S. Thornber, Horticulturist.....Lewiston

##### UTAH

Dr. E. D. Ball, Director and Entomologist.....Logan

##### MONTANA

O. B. Whipple, Horticulturist.....Bozeman

##### CALIFORNIA

C. W. Woodworth, Entomologist.....Berkeley  
W. H. Volck, Entomologist.....Watsonville  
Leon D. Batchelor, Horticulturist.....Riverside

##### BRITISH COLUMBIA

R. M. Winslow, Provincial Horticulturist.....Victoria

#### SUBSCRIPTION PRICE:

In the United States, \$1.00 per year in advance  
Canada and foreign, including postage, \$1.50

#### ADVERTISING RATES ON APPLICATION

Entered as second-class matter December 27, 1906, at the  
Postoffice at Hood River, Oregon, under Act  
of Congress of March 3, 1879.

**Over Production.**—About six or seven years ago, at one of the National Apple shows, in an address made by one of the railroad presidents, he stated that in the year 1915 the Northwest would ship 50,000 carloads of apples and in the year 1920 150,000 carloads of apples. A short time afterwards, Better Fruit editorially stated that it did not believe the apple shipments in 1915 would exceed 15,000 carloads, to any great extent. The year 1915 has arrived and nearly gone. The apple tonnage of the four Northwestern states will be in the neighborhood of 7000 cars and some estimate as low as 6000. Last year the shipments were somewhere between 12,000 and 13,000 cars. Had this year produced a normal crop instead of about 60 to 70 per cent, on account of the increased age of the trees the tonnage would have been somewhere around the neighborhood of 15,000 cars and in all probability would not have exceeded that amount very greatly. The Northwest, on an average, has not increased in tonnage probably more than 20 to 25 per cent over any previous normal year which was not exceedingly heavy or unusually light. If this rate of increase should be continued and maintained, it would mean that in the year 1920 the Northwest would probably ship about 30,000 carloads. However, it is possible and even probable that the increased planting during the years 1910 and 1911 will increase the tonnage beyond the estimated 25 per cent per year, and it is possible that the Northwest in the year 1920 may ship somewhere between 30,000 and 50,000 carloads, which is a long ways from 150,000 carloads, as prophesied by a prominent speaker at the National Apple Show a few years ago. It must be evident to a man who

is familiar with the tonnage and the Northwest conditions, that the enormous over production is not the bug-bear that a good many prophesied it would be a few years ago. When the slump first came in 1912, apple plantings stopped. Consequently there has been no setting of trees since that time. In the year 1920 all of the trees set in the Northwest will be eight years of age, when they reach a fair bearing capacity. After that time, therefore, it is doubtful if there will be any material increase in the tonnage of apples in the Northwest for some years to come.

**Marketing Wormy Apples.**—The codling moth was more severe in the Northwest in its ravages this year than for many years in the past. In various districts the damage done in the way of stings and worm holes has been estimated in many orchards as varying from 10 to 75 per cent. Of course there are a number of orchardists who have been extremely successful, who have sprayed so thoroughly and so well that their damage is less than 2 per cent. In some districts, special arrangements have been made for marketing fruit damaged by the codling moth, the authorities feeling that on account of the short crop, there would be an opportunity to dispose of this fruit, helping out the grower and accommodating the public by supplying this grade at a moderate price. Consequently arrangements have been effected by which fruit affected by codling moth can be shipped in vegetable crates, unwrapped, making it evident that there is no misrepresentation. Of course where the quantity of fruit affected by codling moth is large in the district, it is only natural that growers should want to realize in some way if possible. It is to be regretted that such a condition exists. The districts which have only a small quantity affected in this way are indeed fortunate, because they can well afford then to send this grade to the vinegar factory. One observation in conclusion seems important, and that is, this fruit should be marketed with good judgment and kept out of our best consuming markets that handle our extra fancy and fancy grades of fruit, for which they are willing to pay a satisfactory price. The Northwest must keep up its standard of quality to the fullest possible extent.

**Advertising the Apple to Increase Consumption.**—Every man connected with the marketing of apples appreciates fully the importance of advertising to create a demand. In fact, a great many growers also realize the importance of an extensive publicity campaign. The trouble seems to be, however, this year in raising a sufficient fund. The apple growers were short on account of low prices last year, and although the price looked good for this present season, the average apple grower considers himself wise, and is not going to spend any money before he gets it. Under these circumstances, it was difficult to raise the fund necessary for the right kind of an advertis-

ing campaign, but with the value of advertising made evident to the fruit grower, with good prices and good returns this year, there is little doubt but what the growers in the different districts will come cheerfully forward next year with enough per box, through the associations through which they ship, to put on a campaign that will increase the consumption of apples and create an increased demand, just the same as the demand has been created and the consumption increased by the orange growers in Southern California and all the different food product manufacturers of America, like Cream of Wheat, Toasted Corn Flakes, Sunny Jim, etc.

**Walnut Growing.**—The success of the early pioneers in the English walnut industry, originally in the Willamette Valley, was so marked that a great many walnut groves have been set during the last few years, which have very recently come into bearing and are fulfilling in every way the expectations of the planters, who are producing good crops of superior quality which are selling at a good price. The Franquette walnut seems to be the favorite. The Mayette is another variety favored also. The Franquette is one of the best flavored walnuts that the editor has ever tasted. Last year he was presented with ten pounds, and unhesitatingly pronounces it the best flavored walnuts he had yet tasted. There are a great many walnut groves in the Willamette Valley which are producing quite extensively, a ready market being found for all that is produced. Recently considerable attention has been given the walnut industry in the Yakima Valley, and upon investigation, Mr. Wiggins of the Washington Nursery, has found a grove which is over thirty years old, in fine condition, the nuts being large and of excellent quality. It is quite evident from the success of this grove and odd trees planted here and there, that the climate and soil of the Yakima Valley is suited for the tender walnuts such as mentioned above. The walnut growers of the Northwest are showing their interest in the development of the industry, holding a meeting in Portland, during the first week of November.

**The Value of Our Association Salesmen.**—Too frequently we hear the remark: "I can sell apples just as well as anybody else." Perhaps you can; but in order to be a good salesman or sales manager, one must not only be familiar with all of the different varieties and grades, their eating qualities, their cooking qualities, and their keeping qualities, but he must possess a knowledge of crop condition in all of the various districts and above all, he should possess an extensive acquaintanceship with the dealers who are our purchasers. Very few individual growers possess such qualifications. Anybody can sell apples. Yes, but it takes a salesman to realize the market value of our apples, and the market value is all that any one can expect.



**By-Products.**—The By-Product Committee has not accomplished as much as was anticipated, for which there seems to be a very good reason. After considerable investigation on the part of the By-Product Committee, it wisely arrived at the conclusion that the whole success of the fruit industry did not depend entirely on by-products or primarily upon by-products, but that the future of the fruit industry must depend, first, upon the satisfactory distribution and sales of fresh fruit, and therefore most of the members of the By-Product Committee realized the necessity of assisting to create a market for fresh fruits, giving most of their

## The Power

is given on page 4.

There are also other points of interest to orchardists.

## W. van Diem

Lange Franken Straat 45, 47, 49, 51, 61

ROTTERDAM, HOLLAND

European Receivers of American Fruits

Eldest and First-Class  
House in this Branch

Cable Address: W. Vandiem  
A B C Code used; 5th Edition

Our Specialties are

**Apples, Pears, Navel Oranges**

## Things We Are Agents For

**Knox Hats**

**Alfred Benjamin & Co.'s Clothing**

**Dr. Jaeger Underwear**

**Dr. Deimel Linen Mesh Underwear**

**Dent's and Fownes' Gloves**

## Buffum & Pendleton

311 Morrison Street

PORTLAND, OREGON

## J. & H. Goodwin, Ltd. APPLE IMPORTERS

Commercial Sale Room, Deansgate,  
Manchester, England.

Floral Street, Covent Garden Market,  
London, England.

Fruit Exchange, Victoria Street  
Liverpool, England.

Humber Dock Street,  
Hull, England.

AMERICAN ADDRESSES:

97 Warren Street, New York, N. Y.  
60 State Street, Boston, Mass.

Consignments and Correspondence Solicited

attention and time to that subject. Much has been done along this line by the By-Product Committee, it being instrumental in calling together the Growers' Council. As this influence has already produced good results, it seems timely that the attention of the By-Product Committee should again be called to the subject of by-products. Every year there will be a large amount of all varieties of fruits which for various reasons cannot be marketed as fresh. In the apple business in particular very many apples are either affected by worm stings, fungus, bruises or otherwise below grade, so they are not saleable as fresh fruit. The value of such ranges anywhere from \$6.00 to \$10.00 per ton. In the aggregate this is quite a large sum to the fruit grower, particularly the one who has a large-sized tract. As an instance, a fruit grower who has a full-bearing orchard with a reasonably clean crop will realize from the vinegar factory about \$9.00 per acre this year. A man with forty acres will average for the by-product factory from one to two tons per acre, which at the low figure of \$6.00 per ton would bring from \$6.00 to \$12.00 per acre. This would mean to the apple grower who had forty acres from \$240.00 to \$480.00; \$480.00 will pay the grocery and meat bills for the average family for a year. With a good by-product factory this means just so much money saved because the fruit grower has to pay out this amount and even more to pick, haul and grade out the stuff that is unshippable, and by disposing of it to the vinegar factory he has the opportunity of getting back his money, and \$480.00 saved in this way is just as good as \$480.00 made in any other way.

**South America as an Apple Market.**—So many reports have appeared in print about the opportunities existing in South America as an apple market, that it seems worth while for the apple shipping concerns of the Northwest to give South American business their earnest attention. The government recently sent a man to South America for the benefit of the apple growers of America. This man lived there, speaking Spanish. Before giving this gentleman visited the editor at his office in Hood River, explaining the situation quite fully in advance. Without doubt South America will take an immense quantity of our fruit, but before this can be done, necessary arrangements will have to be made both in the way of transportation, financing details, and proper connections. But the opportunity is so great that it should have special investigation by the apple growers through their shipping concerns.

**Manufacturers' and Land Products Show.**—The editor visited the Land Products Show when in Portland last week, and pronounces it the best show that Portland has ever held of this class. The displays of diversified farm products made by the different counties were among the most attractive, interesting and beneficial features of

## HERE ARE THE Cut Prices

— ON —

### Fruit Ladders

6-ft. Mitchell Tri-Pod Ladder ..... \$2.40

8-ft. Mitchell Tri-Pod Ladder ..... 3.20

10-ft. Mitchell Tri-Pod Ladder ..... 4.00

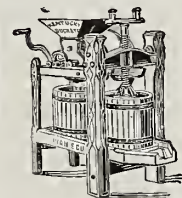
12-ft. Mitchell Tri-Pod Ladder ..... 4.80

14-ft. Mitchell Tri-Pod Ladder ..... 5.60

At these prices (for a first-class ladder) you simply cannot afford NOT to send us a money order or check for one of these ladders

— BUY A —

## Mitchell-Keystone Cider Mill



and you will get more for your money.

Three Sizes  
Prices upon request.

*Mitchell*  
LEWIS & STAYER CO

Portland, Ore.  
Spokane, Wn.  
Boise, Idaho

the entire show. The exhibit of manufactured goods "made in the Northwest" also commanded the attention of the visitor in a very forcible way. The exhibit of home-made manufactured goods will be a strong factor in educating the public as to what is manufactured at home, and with continued effort along this line, a large increase in business can be developed for home manufacturers, which will contribute to the prosperity of the Northwest. The apple exhibits were not large. However, The Dalles had an excellent display of fifty boxes, and Hood River about thirty boxes, consisting of Spitzenberg and Newtowns. One display, made by Gus Miller, of fifteen boxes of Newtowns, was especially attractive. It is to be sincerely regretted that the apple growers did not take greater interest in the show and make more extensive exhibits. However, the apple grower himself understands pretty well



# Oregon Nursery Company

ORENCO, OREGON

Extensive growers of all lines of Fruit, Nut and Shade Trees, Evergreens, Flowering Shrubs, Vines, Roses, etc. Introducers of the VROOMAN FRANQUETTE walnut, recognized as the best walnut. Our large complete stock consists of varieties suitable for every kind of climate.

Write us about your wants before buying.

## Increase your crop—preserve the vigor of you trees by Fall spraying

**Don't  
Neglect  
Fall  
Spraying!**

Remember scale is softer, less resistant and easier to kill it the Fall.

Scale hardens and saps the vitality of your trees during the Winter months, making the tree less vigorous, the scale more resistant.

**Write for prices on Lime Sulphur  
Bordeaux Mixture, Scalecide**

Free Spray Booklet and our Annual Autumn Catalog of Trees and Nursery Stock and Supplies now ready. Ask for Catalog No. 201.

**Portland Seed Co.**

PORTLAND, OREGON



## "PERFECT" Cement Coated Nails

OUR PRODUCTS ARE OF SUPERIOR QUALITY  
AND GUARANTEED TO GIVE SATISFACTION.

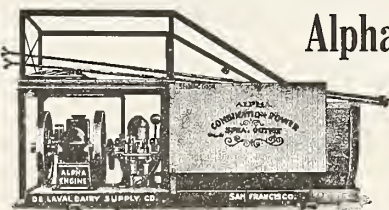
PRICE and QUALITY always right.

**PITTSBURGH STEEL COMPANY, Pittsburgh, Pa.**

**A. C. RULOFSON CO.**

"The Cement Coated Nail People"

**Monadnock Building, SAN FRANCISCO, CALIFORNIA**  
PACIFIC COAST SALES MANAGERS



## Alpha Combination Power Sprayer

FITTED WITH THE

### Alpha Automatic Pressure Governor

ELIMINATES the trouble caused by relief valve.  
INSURES safety and absolute uniform pressure regulation.

SAVES in power when nozzles are not in use.

Equipped with 2½ H. P. Alpha Engine that furnishes ample power for high pressure with four nozzles in use. Send for catalog C-2.

Seattle

**De Laval Dairy Supply Co.**

San Francisco

the reasons; the fact of the matter being that last year prices were so low that the grower did well to make his expenses, many growers not even doing this. Consequently, they have been short of funds and will be up to the time they receive money for this year's crop. The weather being beautiful, every fruit grower was busily engaged in harvesting his crop, putting forth every effort to finish before the rains set in. For these reasons he felt unable to make exhibits on account of lack of funds and did not feel inclined to delay his harvesting in preparing exhibits. This was the condition this year, but it

is to be hoped that next year conditions will change so that the apple grower will take more interest in making exhibits. These are opportunities they should not miss, as this kind of publicity is the best kind of advertising at the lowest cost, which the fruit grower can avail himself of. The show was particularly attractive on account of it being high class in every respect. Every exhibit was one of merit.

**The Growers' Council.**—While a great many people are unreasonable in their expectations in reference to the Growers' Council, it seems apparent to

the writer that the Growers' Council has accomplished a wonderful amount of good by creating a splendid influence. Some people expected the Fruit Growers' Council to have the power to dictate and set prices. Such expectations were unjustified and unreasonable. No organization can set or fix prices without being a trust and absolutely controlling the situation. If any shipping concern or combination of shipping concerns had a sufficient control of the situation and the tonnage to fix prices by dictation, such a condition might be construed as a violation of the trust laws. But to return to the subject—the Growers' Council succeeded in calling a number of prominent growers together from all over, in two large meetings, one in Seattle and one in Tacoma, and also succeeded in getting representatives, officials, salesmen and attorneys of the various shipping concerns together for a conference. In these meetings a great many things were threshed out. All the different shipping concerns found out that the others had some mighty good men, and every one present concluded that the other fellow was not entirely to blame for the disastrous condition that had prevailed. The result of these meetings has been a better feeling of the shipping concerns, which has resulted in a more harmonious condition and less unnecessary competition. This has been a big factor in assisting the selling concerns to obtain more satisfactory prices for the apple growers in the season of 1915.

**The 1915 Apple Movement.**—The local jobbing and trade centers of the Northwest, like Portland, Seattle, Spokane and Tacoma, at the present time are pretty well filled up with apples of the fall varieties and the very early winter varieties, also low grades. Practically all of the apples that are not in first-class keeping condition are being rushed on to the market very rapidly, especially by those districts which have no cold storage facilities. Consequently the market is pretty well filled up with low-grade fruit, very little of the extra fancy and fancy winter varieties being in evidence. Due to the unusual amount of apples affected by codling moth this year and the prevalence of scab in some districts, both of which would affect the value of apples, much of this kind of fruit is being turned loose on the market for the reason that they do not justify cold storage expense.

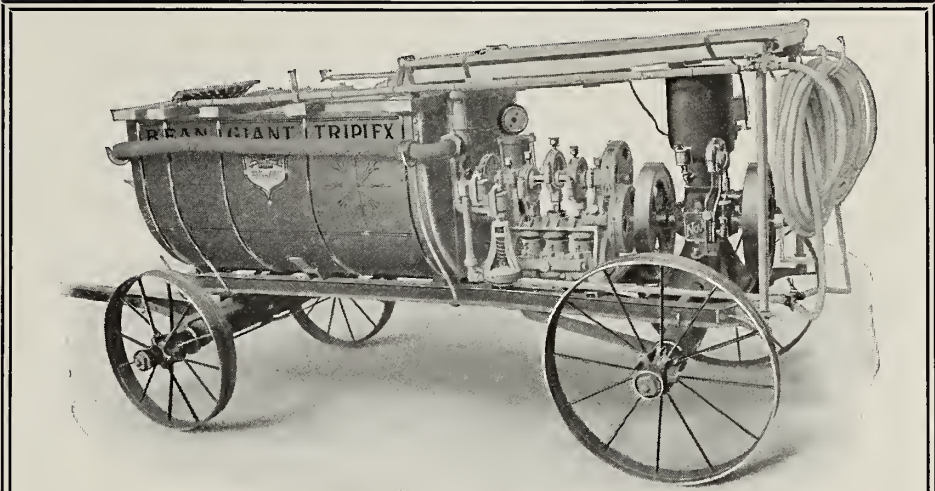
**Stampede Among Fruit Growers.**—The fruit industry of the Northwest has certainly gone through a very wonderful and interesting development and evolution. In this development attention is called to the marked stampede among fruit growers, first in one direction, then in another. A few years ago apple growers of the Northwest concentrated all their efforts in an earnest endeavor to produce quality fruit, doing their work well and thoroughly. In fact, they spared no expense, and it might be said they did their work



expensively, without any idea of the necessity for economy. Much money was wasted. During the last two or three years the whole stampede has been toward selling fruit, consequently there has been a lack of sufficient attention to proper producing methods. A great many growers in this last stampede felt that apples would not bring much money this year. Many growers have slipped a cog in their productive methods, which in a large measure is lack of attention. The fruit growers have lost more through codling moth damage and fungus this year than they have for many years. All of which is intended to indicate the fruit grower should devote sufficient time to producing first, clean fruit, and secondly, to devote a sufficient amount of time to the marketing problem to progress in that as well.

Apples in Local Jobbing Centers of the Northwest.—There are four principal consuming, jobbing, and supply centers in the Northwest—Seattle, Spokane, Tacoma and Portland. It has been suggested that these cities should patronize to the fullest possible extent the associations and growers in their respective states. Such a claim is perfectly justified. The growers in Washington are justified in expecting the fullest cooperation from the fruit dealers of Seattle, Tacoma and Spokane, provided of course they, the growers, cooperate in return. The growers in Oregon are justified in expecting that Portland should favor Oregon growers, provided Portland fruit dealers receive proper treatment. There is no reason in the world why the fruit-jobbing concerns in each state should not give hearty support to the fruit dealers in their own state. Not one of the cities above mentioned has consumed the amount of apples that can be marketed. This is an un-worked problem, but it is a problem that certainly is capable of solution. Our dealers in these cities should be cooperated with to the fullest extent by the shipping concerns, with a view to creating the greatest consumption possible in nearby markets, because there is no better market for the producer than the nearby market, when properly handled. The editor calls particular attention to this suggestion, feeling that there is ample ability in every one of the selling organizations to assist in working out this problem so that the increased consumption and sale in our Northwestern cities that growers are entitled to can be realized. It is to be hoped that it will be done. The editor believes it can be done.

Harmony Among the Shipping Concerns.—During a few years previous to 1915 a great deal of bitterness existed between the different shipping organizations, resulting in a great deal of criticism, one association or shipping concern blaming another for demoralizing competition. In their endeavor for tonnage, unnecessary campaign methods were used, which reflected, more or less, in many instances unnecessarily on other shipping concerns. It



# Bean Power Sprayers

Powerful—Durable—Economical—Efficient

Nothing has been overlooked that might add to the completeness, sturdiness and downright serviceability of Bean spraying outfits. Feature after feature has been developed, tested, patented and incorporated into their construction to make them better. And besides these big outstanding features there are a thousand and one little perfections that put the Bean absolutely in a class by itself.

As a concrete example of Bean leadership take

## The Bean Pressure Regulator

Until we developed this feature the relief valve on all sprayers was a source of unending trouble. The old style valve was not only uncertain and unreliable, but even unsafe. It simply could not be depended upon and when the nozzles were shut off the engine and pump worked away at full pressure just the same—at tremendous waste of fuel and the cause of considerable wear and tear on the outfit.

We have eliminated this relief valve trouble altogether, with the Bean Pressure Regulator. It holds the pressure at exactly the desired gauge—can never fail to operate accurately—and is so constructed that when the nozzles are shut off the engines cease to work against the pressure and simply pump the liquid back into the tank, thus effecting a decided saving in fuel and eliminating the wear and tear on the rig that was caused by the old type of valve.

### Send for New Catalog

The largest, finest and most complete catalog we have ever issued is now in the hands of the printer. It describes our new outfits and new improvements and explains the entire Bean line of Hand Pumps and Power Sprayers. (\$100.00 up). Use the coupon.

## Bean Spray Pump Co.

213 W. Julian St., San Jose, Cal.  
Also Cleveland, Ohio

Bean Spray Pump Co.,  
San Jose, California.

Please mail me your new catalog of Hand and Power Sprayers.

No. of trees..... Kind of trees.....

Name .....

Address .....

was with some satisfaction therefore that it is to be noted so far this year there is far greater harmony prevailing among the shipping concerns than has existed for several years in the past. In fact, if there is any severe criticism on the part of one concern in reference to another, so far it has not been made public.

European Apple Shipments.—The European apple shipments for the week ending October 23, according to Mahlon Terhune, freight broker and forwarding agent, New York City, were a little less than half the shipments for the corresponding week of last year. It must be remembered, however, that the

shipment of box apples from the Northwest last year was about three times what it was in previous years. Freight and insurance rates are much higher this year, and therefore European shipments will probably be considerably less. However, owing to the short crop in the United States the export markets will not be needed to the extent they are during a year of heavy production.

The consumption of apples can be stimulated if all of the local papers and the big dailies in the cities will publish a few of the excellent recipes that have been published at various times. The O.-W. R. & N. Ry. last year issued a very valuable booklet on "Fifty Ways



***I have been to the Expositions and I want to tell you that every man, woman & child who can, by any means, should go. Children of to-day may again enjoy such an opportunity, but you and I—in the prime of life—never.***

—Ask any Exposition visitor.

World conditions are such as will prohibit similar gatherings during our generation. That is why I say to you—GO! ***The San Francisco Exposition closes December 4th.*** There is plenty of time yet to see it, but not more than enough. Now is the best time of the year in California, and of the Exposition season. Therefore—***Go Now!***

We'll take care of your travel needs. That's our business. *Ask the*

**GENERAL PASSENGER AGENT  
PORTLAND**

**OREGON-WASHINGTON RAILROAD & NAVIGATION CO.  
UNION PACIFIC SYSTEM**

**Free** A sixty-four page book on California and the Expositions upon application. *We pay postage*



of Serving the Apple as Dessert." The Northern Pacific Railway issued a very attractive booklet called "Apple Talk," containing a number of very valuable recipes. Apples can be served as dessert in ways too numerous to mention, and what is equally if not more important, is the fact that there is no more wholesome and healthful dessert than one made from apples, and none that costs less.

**Will the Apple Market Advance?**—This apparently is a year for reasonably good prices all the way through; First, on account of the short apple crop; second, on account of improved business conditions; third, better marketing facilities. However, the sellers should bear in mind that it is not wise to take the last drop of milk from the cocoanut. They should remember that there is another year ahead of us, and with their own interests in view, they should not be slow in realizing the necessity of making the price to the dealers sufficiently reasonable so he can make a fair profit.

**National Apple Day, October 19.**—National Apple Day was celebrated quite universally throughout the United States, and was a great feature in stimulating the consumption of apples early in the season, which is always desirable for the fruit grower and beneficial to the consumer. National Apple Day was originated by Mr. James Handley of Quincy, Illinois. An interesting

article will be found in the October edition of Better Fruit of the life of Mr. Handley and the history of the origin of National Apple Day.

**Grading Apples in 1915.**—From the reports, a number of apple-producing districts are using extreme care and a thoroughness in their inspection this year. Generally speaking the inspectors are meeting with a hearty cooperation from the growers, who as a rule seem anxious and willing to put up a pack that shall meet grade requirements in every particular. Nothing better can be done for the future of the Northwest apple industry than to put up an honest grade.

**Extra Fancy Apples.**—The supply of extra fancies in the Northwest is comparatively much less than last year, due to codling moth being worse this year than for many years in the past. Fungus has also affected quite a large quantity. Slight defects like fungus spots do not affect the quality of the apples, but they are not permitted in the extra fancy grade.

The Rural Spirit of Portland, Oregon, is very fortunate, having secured the services of Mr. I. D. Graham as editor. The stock industry of the Northwest has increased very rapidly during the past few years, as illustrated by the fact a few years ago the Union Meat Company of Portland imported 90 per cent of the hogs they slaughtered

from the Middle West, whereas during the past year 90 per cent of the hogs they slaughtered were produced in the Northwest. The stock industry is becoming so important in the Northwest that the Rural Spirit decided to engage the most able man they could secure in this line of work, deciding on Mr. Graham, who is familiar to many of the readers of such publications as the Breeders' Gazette. Mr. Graham is considered a very high authority on live stock and very thoroughly informed on all subjects pertaining to raising stock, feeding stock and caring for stock, and other matters pertaining to the stock industry. His connection with the Rural Spirit will add much to its value, which will be of interest to the fruit-growers, inasmuch as many fruitgrowers are going quite extensively into the dairying business and hog raising.

Rogue River reports an unusually light crop of apples this year, probably somewhere between 100 and 200 carloads, due principally to two causes—drought and frost.

## HOOD RIVER APPLE VINEGAR CO.

HOOD RIVER

**YELLOW NEWTON VINEGAR  
AND SWEET CIDER  
EVAPORATED APPLES**

Made from Choice Hood River Apples

If your jobber cannot supply you  
send your order to

**Hood River Apple Vinegar Co.**

HOOD RIVER, OREGON

## What are your dairy problems?

To get started profitably in dairying as a side-line, the fruit grower needs helpful advice and suggestions.

Our service department will delight in doing this very thing, without any charge or obligation.

We are sole Oregon distributors for "Simplex" Separators, B-L-K Milkers, Papec Ensilage Cutters, Simplex Silos and all kinds of dairy, butter-making and cheese-making supplies.

Your name on a postal will  
bring Free Catalogs

**Monroe & Crisell**

126 Front St.

Portland, Oregon





# Some Results of the Apple Storage Investigation by U. S.

E. L. Markell, United States Department of Agriculture, Washington, D. C.

THE problem of fruit storage would be much simplified if the theory held by one of the darkeys working in the government precooling plant in Florida were correct. "What's all dis here machinery, Sam?" one of his friends asked him. "Why, dat's de guver'ment embalming plant," was the answer. "You puts de oranges in dere an' dey keeps forever." Unfortunately storage of every type has its limitations, and so far no fruit has been discovered which keeps forever. Exceptional instances do occur—one is continually meeting the grower who overlooked one box of apples in the storage house and found four-fifths of them in good condition the following August, and the other grower, some of whose Jonathans

kept perfectly in his cellar until June. Such exceptions are interesting, but they merely serve to emphasize the fact that what the practical grower is concerned with is the rule of the average, the normal result in the greatest possible number of cases of fruit storage on a commercial scale. It is to determine the normal average results of storage from the behavior of apples of the chief commercial varieties grown in the Northwest, picked and stored under different conditions, that the Department of Agriculture has been conducting these experiments for the past four years.

The apple is an organism, and like every living thing has a definite length of life. Favorable or unfavorable con-

ditions may increase or decrease the normal existence of the apple, exactly as they influence other forms of living organic matter. Centenarians among men have their counterparts in centenarians among apples, but these exceptions do not prove that all apples are capable of such prolonged existence. To secure the maximum length of life for his fruit the grower must determine the conditions most favorable for its preservation.

During its growing period, the apple stores within itself food material that is capable of preserving its life for a considerable length of time after its removal from the tree. These food products are mainly starches and sugars, and by the chemical changes which occur in the apple during the ripening process the starches are changed into sugars, and the sugars gradually break up into simpler compounds. The object of storage is to postpone the final breakdown or death of the fruit by checking these developing processes. Thus the fruit secures the maximum length of life as well as full development.

Much, however, depends upon the fruit itself. The condition of the fruit at the time of picking is a controlling factor. It is a common fallacy to imagine that the greener the apple the better its chances of keeping. A green apple is usually immature and the food stored within it has not reached the stage at which it can be utilized by the fruit after it is picked. In consequence green apples fail to become mellow, but shrivel, while the flesh remains hard and insipid. Immature fruit is also found to be more susceptible to diseases. The skin in particular is more subject to scald than that of mature fruit of the same variety. The final death of fruit picked while immature comes more quickly than in the case of that picked at maturity. The work of the Department of Agriculture has clearly demonstrated the importance of picking the fruit at the proper stage. The most striking example of the effect of the degree of maturity at picking time on the keeping quality of the fruit is brought out in the case of Rome Beauty apple, which the following table illustrates:

## ROME BEAUTY.

### MATURE VS. IMMATURE FRUIT.

Per cent bad scald and decay at withdrawal from storage, and after a holding period of ten days under market conditions. Three-year average. Time in storage at first withdrawal, none to three and one-half months.

First withdrawal:	BAD SCALD		DECAY	
	At with- drawal	10 days later	At with- drawal	10 days later
Mature .....	0.0	2.1	0.0	0.3
Immature ....	0.0	65.3	0.0	0.6
Second withdrawal:				
Mature .....	0.0	6.6	0.0	0.3
Immature ....	26.5	79.5	0.0	0.0
Third withdrawal:				
Mature .....	1.4	10.6	0.0	1.0
Immature ....	62.0	93.1	0.3	12.9
Fourth withdrawal:				
Mature .....	4.3	18.7	0.0	3.6
Immature ....	72.6	89.6	0.4	23.7

The table shows the results at four withdrawals from storage in January,

## Lime Sulphur Lead Arsenate Bordeaux Paste Spra-Sulphur

The most serious pests and diseases doing the most damage to trees in the Northwest are San Jose Scale and Anthracnose. The ones doing the most damage to crops and causing a loss of millions annually to fruit growers, are Codling Moth and Scab.

### Growers Must Have Sprays that are Efficient

We make the above sprays of the highest degree of efficiency and sell at reasonable prices.

Clean crops are necessary if you expect to sell your apples at good prices.

### Use Our Sprays and Grow Clean Fruit

Factory at Clackamas, Oregon.  
New factory being built at Hood River, Oregon.

For the present direct all correspondence to

**Oregon Arsenical Spray Co.**  
CLACKAMAS, OREGON

**One Barrel of "Scalecide"**  
Will Spray as many Trees as Three Barrels of  
Lime Sulfur



"Scalecide" has greater invigorating effect on your orchard—kills more scale, eggs and larvae of insects with half the labor to apply. We can back up this statement with facts concerning the Good Results from Using

**"SCALECIDE"**

Send for our illustrated booklet—"Proof of The Pudding". Tells how "Scalecide" will positively destroy San Jose and Cottony Maple Scale, Pear Psylla, Leaf Roller, etc., without injury to the trees. Write today for this FREE book and also our booklet—"Spraying Simplified". Learn the dollars and cents value of "Scalecide, The Tree Saver".

Our Service Department can furnish everything you need for the orchard at prices which save you money. Tell us your needs.

**B. G. PRATT CO., Mfg Chemists Dept. D 50 Church St., New York**





## "Fred"~

"Put this can of Ghirardelli's Ground Chocolate in your basket. You'll find it the most convenient, nourishing, delicious, economical food beverage you can get. There are imitations but I don't handle them as my trade always demands Ghirardelli's."

And Fred took his grocer's advice. He now uses Ghirardelli's Ground Chocolate as a beverage—morning, noon and night. You can make a cup in a minute. For unusual desserts it hasn't an equal.

Order from Your Grocer Today

## Ghirardelli's The Only Ground Chocolate

In  $\frac{1}{2}$ -lb., 1-lb. and 3-lb. hermetically sealed cans. There's a double economy in buying the 3-lb. can.

**D. GHIRARDELLI CO.**

Since 1852

San Francisco

You are invited to visit the Ghirardelli Pavilion at the Panama-Pacific International Exposition and see a model chocolate factory in operation



the middle of February, late March and May. At the first withdrawal no scald showed up, either in the mature or the immature fruit. It was then held under ordinary market conditions, and at the end of ten days only 2.1% of the mature fruit had developed scald, in striking contrast to which is the 65.3% of scald in the immature fruit. At the second withdrawal the mature fruit was still free from scald, but 26.5%, or more than a quarter of the immature lots, had developed scald before removal. Ten days after the last withdrawal 18.7% of the mature fruit showed scald, in contrast to 89.6% of the immature fruit—less than one-fifth of each box in the one case, against almost nine-tenths in the other. Such differences speak for themselves. Ten days after the last lots of fruit had been removed from storage, the decay in the mature lot amounted to 3.6%, but the decay in the lot picked before maturity reached 23.7%.

A greater amount of scald shows up than commonly occurs with other varieties, but Rome Beauty is notoriously susceptible to scald. The natural inference to be drawn from the large amount of scald developing in the picks made before maturity is that in immature fruit the cells forming the skin are weak and break down in storage. After removal from storage they break down still further, and permit the entrance of fungus spores, resulting in more serious decay, as the figures indicate.

The dates at which the apples in the above table were picked are omitted to avoid confusion. Differences of season, section, culture and soil render it absolutely impossible to give a definite statement regarding commercial picking dates for a variety. Many points should be considered in determining whether a variety is ready for picking. In general the seeds should be brown, the apple should have a good color for the variety, the ground color should be white or creamy white, but not yellow, and the fruit should snap readily from the spurs. The proper time for picking is an individual problem for each locality and season, and the grower must determine it for himself.

The tendency in some localities of the Northwest has been to pick prematurely, while in other sections the opposite tendency is prevalent. It should be thoroughly understood that over-maturity is fully as detrimental to the keeping quality of fruit as immaturity. Apples that are over-mature at the time of picking have effected an almost complete change of the starches into sugar, and are that much nearer the end of their life. They could not be expected to last as long as fruit picked a week or two earlier and placed at a temperature that would greatly reduce the speed of the chemical changes occurring in it. The competition among the growers for high color in such varieties as Jonathan and Esopus (Spitzenberg) has often been carried on at the expense of their keep-

## Prune and Grafted Walnut Trees

Also Apples, Pears, Peaches, Plums, Apricots, Cherries, Small Fruit Plants, Etc.

**Can be bought now at Greatly Reduced Prices**

Write today submitting your want list for quotations.

**LAFAYETTE NURSERY CO., LAFAYETTE, OREGON**



**THE** only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. We pay Express charges on all orders. Write for circular and prices.



ing qualities. The results secured with Esopus (Spitzenberg) last year are illustrative of the effects of this practice.

ESOPUS (SPITZENBERG)  
EFFECT OF OVERMATURITY.

Per cent physiological and fungus decay at withdrawal from storage, and after a ten-day holding period under market conditions. The first pick was made September 25, stored September 26, 1913. The second pick was made October 10, and stored October 11, 1913.

DECAY

First withdrawal, January 12, 1914:	At with- drawal	10 days later
First pick .....	0.0	1.3
Second pick .....	2.3	2.3
Second withdrawal, February 19, 1914:		
First pick .....	0.0	1.3
Second pick .....	9.1	25.0
Third withdrawal, April 1, 1914:		
First pick .....	1.3	2.7
Second pick .....	4.0	26.0
Fourth withdrawal, May 4, 1914:		
First pick .....	2.7	6.7
Second pick .....	14.0	36.0

As can be seen, at the first inspection the difference in the two picks are very slight, but little decay occurring in either. At the second inspection, on February 19, which marks the usual limit of commercial storage for this variety, there was no decay in the first pick, made at maturity, and 9.1% in the second. Ten days later, or by the time the fruit would normally reach the consumer, the decay had increased to 25% (one-fourth of each box) in the lot picked when over-mature, and was only 1.3% in the lot picked at maturity. Considering the fact that the first pick was made before commercial picking for that variety could be said to have started in that particular section, and the last pick was made considerably before the last commercial pickings, it is interesting to speculate how much of the Esopus (Spitzenberg) from this locality was fit to use when it reached the consumers.

The temperature at the time of picking is a very important factor in determining the length of life of the fruit. If the temperature is high at the picking time, the fruit matures very rapidly. This was the case during the past season. An uncommonly mild fall has

HARNESS  
TRIMMINGS

Kept Trim  
and Bright  
by



Large  
Sifter Can,  
with Full  
Directions, 10c



PORTLAND, OREGON

Portland Hotel

The hotel which made Portland, Oregon, famous  
Most Desirably Located. In the Center of Shopping and Theatre District  
Covers a City Block.

Broadway, Sixth, Morrison and Yamhill Streets  
European Plan—\$1.00 per day and upward

Write for Portland Hotel Booklet.

GEO. C. OBER, Manager

POWER WASHER

WOMAN'S  
FRIEND

A REAL  
POWER WASHER

Round rubber rubs the clothes, turns them over and over and forces the hot, soapy water through them. Washes tub full perfectly clean in 5 minutes. No wringers to shift. Nothing to get out of order. Special low price to introduce. Catalogue free.

BLUFFTON MFG CO. BOX BF, BLUFFTON, OHIO.

Sunshine Lamp  
300 Candle Power **FREE**

To Try In Your Own Home  
Turns night into day. Gives better light than gas, electricity or 18 ordinary lamps at one-tenth the cost. For Homes, Stores, Halls, Churches. A child can carry it. Makes its light from common gasoline. No wick. No chimney. Absolutely SAFE.

**COSTS 1 CENT A NIGHT**  
We want one person in each locality to whom we can refer new customers. Take advantage of our SPECIAL FREE TRIAL OFFER. Write today. AGENTS WANTED.  
**SUNSHINE SAFETY LAMP CO.**  
639 Factory Bldg., Kansas City, Mo.



Printing

For the Fruit Grower  
Manufacturer  
and Merchant

Labels      Booklets      Blank Books  
Stationery      Catalogs      Posters

Write for Prices and Specifications. We can supply your wants quickly, accurately and economically

We print "Better Fruit"

F. W. Baltes and Company  
Portland, Oregon



# 5 instead of 25

If we were to pick out only one point in the Caterpillar Tractor, to show the improvement in the new models, it would be this:—5 pieces in the track unit where there were 25 three years ago—less wear, no waste of power, longer life.

If we were allowed only one argument to put up to a Caterpillar prospect, it would be the argument of quality—of right design—of best grade material and workmanship—of "stand-up-iveness."

The Caterpillar has been 10 years in the field—10 years to be tried in—10 years to be improved in.

We're looking for some good live tractor prospects to let loose some of our enthusiasm on. If you're the man drop us a line—ask for Bulletin BE 311.

## The Holt Mfg. Co.

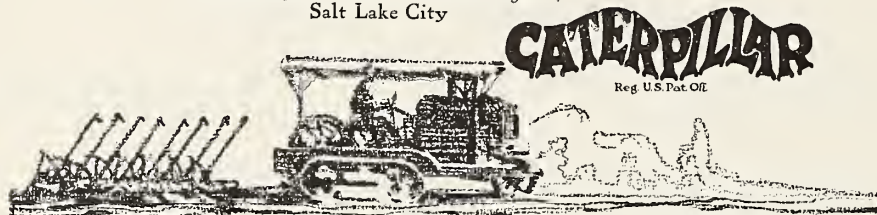
(Incorporated)

Spokane, Wash.  
Stockton, Cal.

Portland, Ore.  
Peoria, Ill.

Cons. Wagon & Mchy. Co., Sales Agents,  
Salt Lake City

Ask about our Caterpillar school—free if you order now.



caused the apples in many sections to mature far more rapidly than usual, and as a result much of the fruit is being stored at a more advanced stage of maturity than in the past. High temperatures affect the fruit after picking even more than during their life on the tree. It has been determined that apples mature as rapidly, if not a little more so, off the tree as upon it, if held at the same temperature in both cases. Therefore, unless the fruit is stored at a low temperature immediately after it is picked, its vitality and possible length of life will decrease very rapidly. Many growers pick the fruit at the proper time, but allow it to remain in the orchard for days, subject to alternate heating and cooling—conditions most unfavorable to keeping quality. Even after it is removed to the packing house it is often many days before it is packed and stored at the proper temperature. The effect of such delayed storage in contrast to immediate storage has been well brought out by the Department experiments. Boxes of fruit that had been picked, packed and stored within a few days were compared with boxes of exactly the same fruit, picked and packed at the same time, but delayed for two weeks before storing. This experiment has been carried on with a number of varieties of apples in the principal fruit sections of the Northwest for several years, so that approximately average results have been secured. The following table gives a summary of the results in four varieties:

### IMMEDIATE VS. DELAYED STORAGE.

Three-year average for Esopus (Spitzenberg), Jonathan, Winesap and Rome Beauty. Percent of bad scald and of decay at withdrawal from storage, and after a ten-day holding period under market conditions.

	BAD SCALD		DECAY	
	At with- drawal	10 days later	At with- drawal	10 days later
First withdrawal, January:				
Immediate . . . .	0.0	4.1	0.1	1.1
Delayed . . . . .	0.1	6.7	0.6	2.2
Second withdrawal, February:				
Immediate . . . .	0.6	9.6	2.1	4.9
Delayed . . . . .	0.9	12.0	4.4	7.0
Third withdrawal, March:				
Immediate . . . .	5.2	12.7	3.9	7.4
Delayed . . . . .	11.5	22.7	7.3	13.2
Fourth withdrawal, May:				
Immediate . . . .	10.3	20.0	4.7	12.8
Delayed . . . . .	17.0	31.4	7.9	18.2

Note that ten days after the first withdrawal from storage, 4.1% of the immediate lot showed bad scald, as against 6.7% of the delayed lot, and ten days after the last withdrawal the difference is still greater, 20.0% of the immediate lot, against 31.4% of the delayed. The rate of decay showed similar differences at the same periods—1.1% of the immediate lots, ten days after the first inspection, and double that amount in the delayed lots, and ten days after the last inspection 12.8% in the immediate, with 18.2% in the delayed fruit.

This table needs little comment, for it shows plainly that at each of the inspections the amount of the deterioration was decidedly greater in the delayed storage lots, though, as previously stated, the delay began after the fruit had been packed. Undoubtedly if part of the delay had been in

## Radium and Plant Life

A very low radio-activity exerts on plant life a healthful stimulation of all the vital processes, and assists in building up the soil so that all growing things can be at their best—healthy, thriving and vigorous.

This radio-active material is the residue from the process of radium extraction and contains a definite amount of radium element. When applied to gardens, trees or crops the results are most gratifying. Radium has an influence, described by scientists, as very similar in its effects upon vegetation to the ultra-violet rays of the sun, and as applied to growing things is the most important discovery of the century.

We have an illustrated book sent free upon request showing what has already been accomplished.

## California Radium Products Co.

633 Van Nuys Building

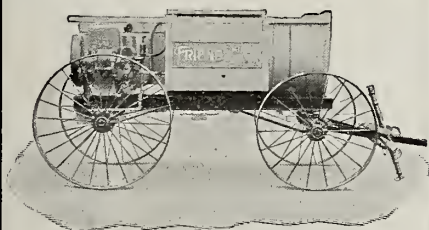
LOS ANGELES, CALIFORNIA



# Mr. Fruit Grower

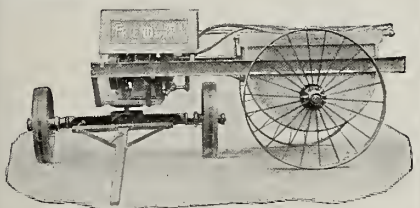
Read and think of these features that characterize all TRUE FRIEND SPRAYERS

Adaptability—easy drawing—flexible truck—cypress tank—ample capacity—direct propeller agitator—high pressure "MOTOR-PUMP" producing perfect alignment—auto type motor, works on hillsides—plunger pump—quick accessible, adjustable and detachable parts—angle leakless shut-offs and celebrated "FRIEND" nozzles.



## "Friend" King

The most talked of sprayer. Received Medal of Honor at Panama Exposition. Highest award given a single outfit. Built for BUSINESS from wheels to nozzles.



## "Friend" Queen

The most unique sprayer. Built for HILLSIDES—low hung—cut under. Thoroughly tried. "Up-to-minute." The Great California, Washington and Oregon favorite.



## Lightest "Friend" King

Actual photo. One or two horses. Five years test. Brim full of features and advantages like KING and QUEEN. Large orchards buy two or more.

A power sprayer for every fruit grower in hill or level country. The greatest sprayer bargains ever offered. Made by the OLDEST and LARGEST exclusive sprayer works.

"FRIEND" has not only an UNPURCHASEABLE REPUTATION but BETTER SPRAYERS. Don't buy until you see them. Tell us your desires NOW and get our offer.

## Friend Mfg. Co.

Gasport, N. Y.

Representatives:

California Spray Chemical Co., Watsonville, Cal.  
J. A. Prentis, Cashmere, Wash.  
M. V. Mathews, Paonia, Colo.

the orchard after picking and before packing the amount of decay would have been greater.

It is a well-known law that with each increase of 18 degrees Fahrenheit, the rapidity with which chemical changes take place is increased from two to three times, or applying this to fruit storage, at 50 degrees temperature the chemical changes which ultimately result in the death of the fruit would occur at least twice as rapidly as at 32 degrees. Thus the conclusion to be drawn is plainly that the lowest temperature at which the fruit can be held without danger of freezing is the one most favorable to its length of storage life. Fruit has been placed by the Department of Agriculture in cold storage, part held at 32 degrees and part at 35 degrees, and the results were briefly as follows: The first two inspections, in January and February, showed very little difference in the amount of scald or decay in normally good-keeping apples held at the two temperatures. However, at the third and fourth inspections, made toward the end of their storage life, the fruit held at 35 degrees showed considerably more decay than that stored at 32 degrees. In apples with a shorter storage life the differences were shown even in the first two inspections. These results are additional proof to the effect that low temperatures retard the ripening processes, and that as these processes are quickened by higher temperatures the length of life of the fruit is shortened and its susceptibility to disease increases.

Even after many years of successful cold storage of apples many persons cling to the belief that cold-storage apples will not keep as well upon removal as apples that are held throughout at a higher temperature. The Department investigations give very conclusive evidence that this opinion is erroneous. Apples from the same lot, placed in and removed from cold and common storage at the same time and held after removal under similar conditions, practically always favor the lower temperature, especially if removed fairly late in the storage season. Apples held in common storage are usually removed by January or February, while those in cold storage are often kept considerably later. People are apt to compare apples removed from common storage early in the season with those taken from cold storage a good deal later, and this is obviously unfair. Apples held in any kind of storage until they are overripe will undoubtedly deteriorate very rapidly upon withdrawal to a warm temperature. Just as cold retards ripening in storage, a cool temperature is best for fruit when held for any length of time after its removal from storage.

In spite of what has been said regarding the effects of temperatures higher than 32 degrees upon the keeping quality of apples, every grower here doubtless realizes the impossibility of placing all of the crop in cold storage. At the present time lack of

# Only a Car of Apples

(Continued from October issue.)

## The Plot Thickens!

## Bunco Skinner at Bat!

(By C. C. P.)

"Curr-r-r-r-ssses!"

It was B. S., the Proud Produce Pirate, who emitted this exclamation through his clenched teeth.

His musical voice trembled with suppressed emotion. His jewelled fingers nervously clutched a telegram, the contents of which had caused this outburst, for it said:—"Won't consign. Will only sell draft attached Bill of Lading. Ruggles of Red Gap."

But instantly B. S. recovered his wonted poise. Again he was master of the situation. In honeyed tones he called his private secretary.

"Here, Miss Keys, take a wire to this sagebrush rabbit—'Ruggles of Red Gap: Answering yours, date, will buy any part ten cars extra fancy winesaps three dollars box delivered. Answer. Bunco Skinner.'"

Daintily lighting another of his private stock Turkish Cigarettes, B. S. leaned back luxuriously and soliloquized—"Guess the overquoting B. S. consignment racket is about played out, but I've got a trick worth two of that."

This absorbing story will be continued in our next.

DON'T MISS A NUMBER.

WRITE TODAY.

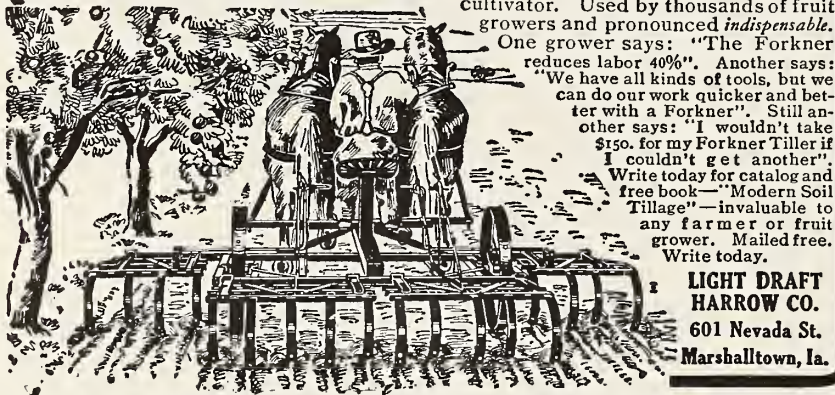
**Produce Reporter  
Company  
CHICAGO**



# FORKNER SPRING TOOTH TILLERS

## WORK RIGHT UP TO YOUR TREES

Cultivate entire surface between rows without disturbing boughs or fruit. Does more work—easier and quicker—and leaves better surface mulch than any other cultivator. Used by thousands of fruit growers and pronounced *indispensable*.



One grower says: "The Forkner reduces labor 40%". Another says: "We have all kinds of tools, but we can do our work quicker and better with a Forkner". Still another says: "I wouldn't take \$150. for my Forkner Tiller if I couldn't get another". Write today for catalog and free book—"Modern Soil Tillage"—invaluable to any farmer or fruit grower. Mailed free. Write today.

**LIGHT DRAFT  
HARROW CO.**  
601 Nevada St.  
Marshalltown, Ia.

## the Gasoline of Quality

Highest award at San Francisco and San Diego Expositions. The gold medal gas—first in carbureting qualities, in purity, in uniformity.



### Red Crown

the straight  
refinery gasoline

**Standard Oil Company**  
(California)  
Portland

## The Last Chance

TO VISIT THE

### *Panama-Pacific Exposition*

is during the month of November, for this great educational fair closes on

**December 4th, 1915**

You cannot afford to miss it. So many advantages too. The climate at San Francisco now cannot be beaten.

Low round trip fares in effect; stopovers allowed, and

### **Four Trains a Day**

from Portland to San Francisco over the

### **Shasta Route**

Secure our booklet "Wayside Notes" from nearest agent or write

## SOUTHERN PACIFIC

**John M. Scott, General Passenger Agent**  
Portland, Oregon.

storage space necessitates the shipping of great quantities of apples to Eastern markets throughout the harvesting season, with disastrous results to prices. With this state of affairs at present, and apple production on the increase certainly for many years to come, the question of finding storage space for the coming crops is one of the greatest problems confronting the fruitgrower of the Northwest. Cold-storage warehouses represent a large amount of capital in buildings and equipment, and also require a large operating capital. Some communities are justified in raising funds for a cold-storage plant, but many are not. It is nearly always possible, however, for a small community, a group of growers, or even one large grower to build a common or air-cooled storage house that will satisfactorily provide for their necessities. A common storage house of very large capacity may be built for six or eight thousand dollars, with slight operating expenses, as against fifty or a hundred thousand dollars and large running expenses for a cold-storage plant. Many common storage houses have already been built in various sections of the Northwest, and the Department of Agriculture has inspected many of them, held their fruit in several of them in the past, and has this season originated more extensive work with this type of storage.

Some of the common storage houses in the Northwest are well constructed and efficient, while others are unsatisfactory from many standpoints. Two essentials to be secured in the construction of a storage house are good insulation and an effective system of ventilation. Both of these are of utmost importance. A building must be well insulated to maintain a uniform temperature, and this is necessary if the fruit is to keep satisfactorily for any length of time. Even the briefest consideration of the details of construction and materials necessary to secure proper insulation would exceed the limits of my time, but it is highly important that the common storage be constructed to permit the minimum passage of heat or cold through its walls.

Ventilation is the next important consideration, and this may be achieved by simple air shafts, or more complicated systems, employing electric fans in the shafts. It is essential that outside air should not be admitted to the storage house when it is warmer than the air within the house. The owner of one storage house visited a short time ago was much distressed because his fruit was sweating. Upon investigation we found the ventilators all open, the electric fans in the shafts going, and the outside air, which was decidedly warmer than the air in the storage house, rushing in and condensing upon the cold fruit. This may serve to emphasize the necessity of constant and careful attention to the ventilators if the common storage is to be satisfactory.


Uniformity of temperature is a most important consideration in a common



storage house. It is better to hold the fruit at 40 degrees than to bring it down to 32 degrees at night and allow it to jump up to 45 degrees during the day. During the early part of the season, the temperature in a common storage house will probably remain relatively high, especially if cold nights are none too plentiful. This year the temperature in most of the common storage houses in the Northwest as late as the first of November was about 50 degrees. The daily receipts of warm fruit prevent the lowering of the temperature at a very rapid rate during the harvesting season. A greater effort should be made on the part of the grower to deliver the fruit to the storage house in as cool a condition as possible. Leaving the boxes of picked fruit in the orchard over night and hauling them to the storage house early in the morning would insure their arrival at low temperature. Fruit picked during the day and stored while still warm carries a large quantity of heat with it into the storage room, and when the boxes are stacked considerable time is required to reduce them to the temperature that they would reach if simply left in the orchard over night. After all of the fruit has been received it is a rather simple matter to reduce and hold the temperature at the point desired. Thirty-five degrees is about as low a temperature as most of the common storage houses maintain, but in some cases thirty-two degrees is reached and held. In either case, the length of time in the fall during which the fruit is held at a high temperature shows itself in the shortened life of the fruit. As mentioned before, early in its storage life an apple will show as little decay in common as in cold storage, but toward the middle of its storage life the difference becomes quite marked. In short, common storage may be as satisfactory as cold storage for fruit that is only to be kept until about the middle of the winter. Fruit to be held for longer periods should be placed in cold storage.

It seems entirely feasible to divide a common storage house into various compartments, each of which could be filled with fruit as rapidly as possible, and then held at a uniform temperature. This would render the common storage more nearly as efficient as the cold storage, but until some such plan has been worked out the preceding statements must hold.

In conclusion, let me say that although the experiments conducted by the Department of Agriculture along the lines indicated are by no means complete, and in fact in some directions, such as the investigations into common storage, can only be said to have begun, I have given only such results as are confirmed by the evidence of several years' work. In brief these are: 1. Most varieties of apples for storage should be picked at maturity. 2. Apples should have the least possible delay from the tree to the storage. 3. For cold storage a temperature of 32 degrees is usually the most satisfactory. 4. In the case of those varie-



**Rigid**

are the requirements of the Banking Laws of the State of Oregon governing state banks. These inflexible laws exact of the stockholders of such banks a liability that affords the savings' depositor absolute protection for his money. It is security that commands the consideration of every depositor seeking to safeguard his savings. Enjoy such protection by placing your savings in this strong state bank.

**Ladd & Tilton Bank, Portland, Oregon**

Oldest Bank in the Northwest


Capital and Surplus  
Two Million Dollars

**A Royal Road Through the Fairyland of Knowledge**

**The New Library of**

# Valuable Knowledge

The most interesting and instructive set of books ever written. Complete in 25 splendid volumes with nearly 1,000 illustrations. Introduction by W. T. Harris, A.M., LL.D., late United States Commissioner of Education. In these 25 truthful stories you will find the very essence and substance of human knowledge, sifted, sorted, arranged and told in the most charming, entertaining and instructive manner by the world's eminent scientists and scholars. These books are as interesting as the best fiction. You cannot find a more lasting and profitable investment.



**Here Are the Contents**

- Vol. 1. The Story of the Stars
- Vol. 2. The Story of the Solar System
- Vol. 3. The Story of Eclipses
- Vol. 4. The Story of the Earth
- Vol. 5. The Story of the Atmosphere
- Vol. 6. The Story of Germ Life
- Vol. 7. The Story of Plants
- Vol. 8. The Story of Sea Life
- Vol. 9. The Story of Animal Life
- Vol. 10. The Story of Man
- Vol. 11. The Story of a Piece of Coal
- Vol. 12. The Story of a Grain of Wheat
- Vol. 13. The Story of the Cotton Plant
- Vol. 14. The Story of Primitive Man
- Vol. 15. The Story of Eastern Civilization
- Vol. 16. The Story of Western Civilization
- Vol. 17. The Story of the Alphabet
- Vol. 18. The Story of Discovery
- Vol. 19. The Story of Architecture
- Vol. 20. The Story of Music
- Vol. 21. The Story of Books
- Vol. 22. The Story of Photography
- Vol. 23. The Story of Electricity
- Vol. 24. The Story of Rapid Transit
- Vol. 25. The Story of the Mind

**Books for the Whole Family**

Read Volume 1, giving the story of the stars, and it will give you more knowledge regarding the starry heavens than you could ever hope to know except by taking a college course on that subject. Read the story of the earth in Volume 4 and you will have a thorough knowledge of geology. Read the story of a grain of wheat in Volume 12, and you will learn more than you ever dreamed could be known of the growth, manufacture and marketing of an agricultural product. Read the story of the mind in Volume 25, by the Professor of Philosophy in Johns Hopkins University. In fact, read any of the volumes, it matters not which, and you will not only find them interesting, but you will find a wealth of knowledge and information almost invaluable.

**The Story of the Stars**

is told just as though Professor Chambers should go out with you some starlight night, and, looking into limitless space, tell you the great truths he has learned; reveal to you the wonders of the heavens, the magnitude, the distance, the motion of the stars, so that ever after you will enjoy the scene a hundredfold. But space prevents even the barest outline of the delights in store for you in these volumes.

**The Story of the Plants**

The famous author, Professor Grant Allen, takes you for a walk through the garden and into the fields, entertaining you meanwhile by telling you what he knows about plant life; how plants began to be, how they differ, how they eat, drink, marry, club together, care for their young, etc.; so that in the future every flower, shrub or plant that grows, will speak to you in a new tongue and mean something it never did before.

**Special Bargain—Send No Money**

We will ship this complete set to your home for your examination for a payment of only \$1.00 after five days' examination and approval, and \$2.00 per month thereafter for only twelve months, until our special bargain price of \$25.00 is paid. If you prefer to pay cash, deduct 5% discount, remitting \$23.75. This is perhaps the greatest bargain we have ever offered—a beautiful half-leather bound set with silk cloth sides for only \$1.00 a volume. We print herewith for your convenience an inspection coupon. You incur no risk whatever, for if the set doesn't please you in every way, notify us within five days and we will promptly give you shipping instructions for its return. This is the greatest bargain we have ever been able to offer on so valuable a set of books.

**INSPECTION COUPON**

THE RIVERSIDE PUBLISHING COMPANY, 11-15  
Better Fruit Bureau, Hood River, Oregon.

Please ship for my examination and approval one set of the LIBRARY OF VALUABLE KNOWLEDGE, 25 volumes, leather backs with buckram sides binding. If books are satisfactory I will send you \$1.00 within five days and \$2.00 monthly thereafter for twelve months, until your special price of \$25.00 is paid. If set does not meet my approval after five days' examination I will notify you and return as soon as you give me shipping instructions, as offered "Better Fruit" readers.

Name.....

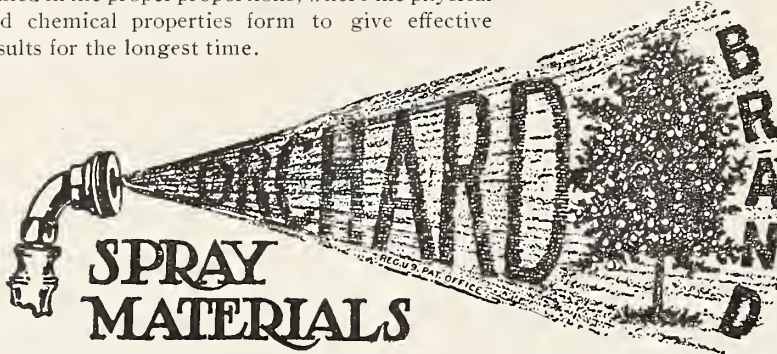
Address.....

Enclose business card, letter-head or references.



# ORCHARD BRAND SPRAY MATERIALS

are manufactured by one company. They are made in one way—the right way—mixed in the proper proportions, where the physical and chemical properties form to give effective results for the longest time.



**DORMANT SOLUBLE OIL** met with general success throughout the Northwest last winter, as a general clean-up spray, during the dormant season. It is especially prepared for the control of scale insects—and to kill aphids eggs.

**ORCHARD BRAND** Bordeaux Mixture—Lime-Sulphur Solution—Arsenate of Lead paste and other **ORCHARD BRAND** products are kept in stock for distribution at the proper seasons.

Our information Bureau is at your disposal, free of charge. When writing state quantity and kind of material desired; or the age, number and kind of trees, and the pest you wish to control.

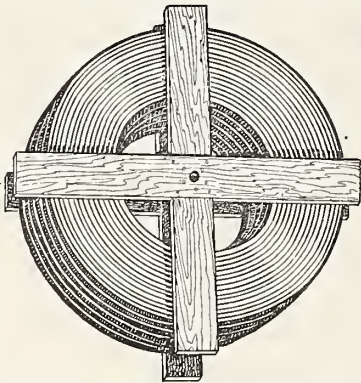
Visit the **ORCHARD BRAND** products booth at the Spokane Fair.

**The General Chemical Company**

201 Sansome Street

SAN FRANCISCO, CAL.

## Spend a Nickle and Save a Dime



No. 3 Peerless Duplex Strapping in coils of 6,500 feet each—\$14.63 per coil with liberal discount.

No. 3 Duplex Strapping is made of high grade Cold Rolled Steel of considerable tensile strength and pliability. The turned edge protects the packer's hands; the knurled center prevents the nail from slipping while being driven.

**Discounts and Information from  
Pacific Coast Representatives**

**A. C. RULOFSON CO.**

No. 359 Monadnock Building, San Francisco, California

**TWISTED WIRE AND STEEL CO.**

515-521 Greenwich Street, New York, N. Y.

## Use Peerless Duplex Strapping

ON YOUR  
Shipping Boxes  
and

- (1) You will prevent pilfering.
- (2) You will prevent damage in handling.

ties for which a short storage is desired, common storage may be made as satisfactory as cold storage.

The tables used are from "Cold Storage of Apples, with Special Reference to Conditions in the Pacific Northwest," U. S. Department of Agriculture Bulletin, to be published at Washington in the near future, and for a more full account of the results of the apple storage experiments, I would recommend this bulletin to your attention.

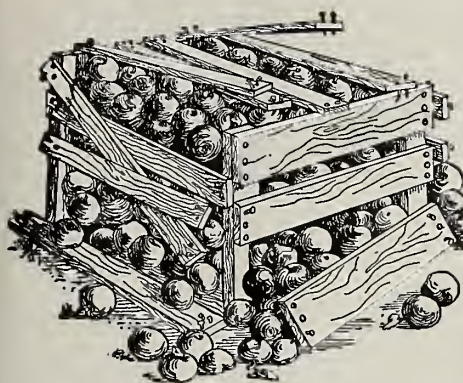
### Trained Dairymen Employed

Every member of the classes graduating in dairying at the Oregon Agricultural College in the years 1914 and 1915, twenty-five in all, has taken employment in industries directly related to the work of his special training in college. The eighteen members of the class of '15 have employment in their specialties, largely as a result of the policy of the dairy department in placing its graduates in positions advantageous to themselves and to their employers. Six of the eighteen are employed as official testers in cow-testing associations. Three have found positions as superintendents of public institutions interested in dairying. Two are managing co-operative creameries. One is milk inspector in a metropolitan bureau of health. Two are butter makers in commercial creameries, and two are taking advanced work in college. Of these the manager of a large dairy ranch receives the highest salary, \$1,200 per year, with residence accommodations. Three others receive \$1,200 without accessories. Two receive \$1,000 each, and several receive \$750 each in money and their board and rooms, approximating as much more. The seven graduates of the 1914 class also receive satisfactory salaries in performing the work that the college trained them to do. By thus following the careers of its graduates and noting the degree of efficiency of their work, the college is able to determine the efficiency of its own work so far as those students are concerned. This situation rarely prevails in educational work, wherein the relation between the training and the later life work is a baffling problem. Those who support public education as well as those who make use of its opportunities are beginning to insist on an answer to this problem, which to a considerable degree is found in the data collected.

The British Columbia fruit crop,—peach and apricot,—show a considerable increase over last year, although in some districts leaf-curl has been quite extensive. The pear crop is about 25 per cent larger than in 1914; the plum crop about 90 per cent of last year; the cherry crop was larger than the 1914 crop and the apple crop is reported about 70 per cent of last year.

Southern Idaho expects to ship 1,500 carloads of apples this season (probably an overestimate). The greater proportion of these will be shipped from Payette, which will probably ship somewhere around 500 cars.





BEFORE using Cement Coated Nails

## Western Cement Coated Nails for Western Growers

Our Cement Coated Nails are always of uniform length, gauge, head and count. Especially adapted to the manufacture of fruit boxes and crates. In brief, they are the Best on the Market.

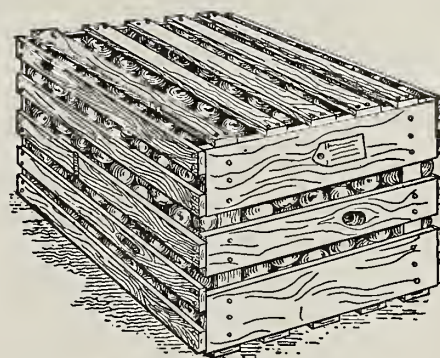
Write for Growers' testimonials.

### Colorado Fuel & Iron Co.

DENVER, COLORADO

Pacific Coast Sales Offices

Portland, Spokane, San Francisco  
Los Angeles

AFTER use of C. F. & I. Co.'s  
Cement Coated Nails.

# Apple Marketing—Conditions Show Marked Improvement

[Furnished by Office of Markets and Rural Organization, United States Department of Agriculture]

THE marketing of the 1915 apple crop opens with more encouragement to growers and dealers than they found in the prospects for the 1914 crop. According to investigations conducted by the Bureau of Crop Estimates last reports show the condition of the crop to be approximately 80 per cent of the yield last year. The merchantable supply or commercial crop, as distinguished from total production, therefore, would appear to be approximately 40,000,000 barrels at the highest, whereas the commercial crop of 1914 is variously estimated as having been from

50,000,000 to 60,000,000 barrels. It is reported that, in the large areas where barreled apples are produced, the crop of early fall varieties is relatively larger than the crop of winter varieties. This would seem to indicate that within a very short time a considerable quantity of apples included in the bureau's estimates will be eliminated from consideration. Furthermore, it is said that the crop in some sections is seriously affected with fungus and blotch. To the extent that these defects prevail will the merchantable supply be reduced. Under these conditions, therefore, it would appear that the commercial crop of winter varieties may be considerably smaller than the total production the report would seem to show.

Business conditions show a marked improvement over last season, according to trade reports received by the Office of Markets and Rural Organization. The South, particularly, is in easier condition, and it is said that the United Kingdom and countries in the north of Europe will take liberal quantities. However, with reference to Europe, it is to be remembered that steamer space is in great demand. It is reported that all cold chambers are under contract with meat packers until the first of the year, and ordinary space is said to be more limited than in 1914. In shipping circles it is maintained that Europe may not be expected to take the same quantities as last year. According to trade reports the abundance and cheapness of apples during the past year will be reflected in a satisfactory consumption this year. In other words, it is thought that the habit of eating apples may be expected to hold over from last season. However, one or two correspondents maintain that the conditions of one season do not affect the next insofar as consumption is concerned.

It is generally reported that abundant storage space will be available and that comparatively there will be no great difficulty in financing the movement of the crop. Conditions for liberal consumption are said to be good in most markets, and altogether there is a de-

cided feeling of optimism on the part of those concerned, as compared with absolute gloom this time last year. It is to be remembered, however, that 40,000,000 barrels of merchantable apples, which is thought to be the maximum estimate for this year, is a goodly supply, and that to assure a steady normal movement throughout to the conclusion of the season next spring, large quantities must pass into consumption between now and the first of the year. Unreasonably high prices at this time will mean a curtailment of consumption and the storing by the growers of

## True-to-Name Free From Pests

That's what you want when you plant fruit trees. That's what you get when you order the

## O. & F. Unxld Brand

Get our prices before planting this fall.

Largest stock in the Northwest.

All grown on virgin soil.

Everything in fruit trees and a full line of

Flowering Shrubs, Roses,  
Shade and Ornamental Trees.

**Ornamental and Fruit  
Nursery Co.**

Box 217 K WAPATO, WASH.

Catalog will be mailed  
free upon request.

## Of Known Value

## Heywood Mattresses

Made of best material with extra felting in the center.

Guaranteed to give you full value and satisfaction.

Insist on a Heywood and get certain satisfaction.

**\$12 \$15 \$18**

Made By

**HEYWOOD BROTHERS AND  
WAKEFIELD COMPANY**  
Portland and Seattle

Sold By

**All Best Dealers**



# Vertical Farming PROVED



**A**LL progressive farmers and orchardists know that trees planted in blasted ground grow much faster than those planted in the old way and bear fruit earlier.

This proves the truth of the principles of Vertical Farming, which aims to cultivate downward as well as to till the top soil.

Three years ago tree planting in blasted holes was experimental—now millions of trees are set out by the Vertical Farming method every spring and fall.

In like manner, blasting the subsoil to increase general crop yields, now regarded as experimental, will in a few years, be common.

To learn how and why Vertical Farming may double the yields of your farm, get the **Free Reading Course** in Vertical Farming, by Dr. G. E. Bailey, one of the best works on soils and soil culture ever published. Sent free with every request for our Farmer's Handbook N. F-338. Write now.

Established 1802 **E. I. DU PONT DE NEMOURS CO.**, Wilmington, Del.

larger quantities than the conditions might justify, with the result that later on they might receive net prices below the level of opening values. By this it is not meant that growers ought to sell now for less than market value, nor is it meant that buyers are to be encouraged in depressing opening values. The outlook is normally encouraging for satisfactory profits to all concerned if good judgment is used, and it is meant to urge upon growers and dealers alike the advisability of breaking deadlocks with reasonable concessions on the part of all. Arbitrary ideas of values should be avoided, so that the movement of the crop may proceed in a healthy way. Unfortunately, when the demand for apples is good, many growers and packers seem to feel that poor grading is justified, and in such years there is a tendency to lower standards. Attention is called to the fact that no condition can justify anything but an honest pack. For a poor grade and shoddy pack the producer ultimately must pay, although temporarily the packer may receive an advantage. Apples should be sold for just what they are, according to the recognized grades. Whether or not the price may be high, growers and dealers alike should adhere strictly to that policy.

Under all conditions there are certain fundamental processes that ought to be observed in preparing the crop for market if success is to be assured. The fruit should be picked and packed in such condition as to insure it against abnormal deterioration. With perishable varieties having a long ripening season it is suggested that growers should not attempt to harvest the crop at one picking, but rather should glean the trees for only such fruit as is ready to come off, repeating the process until the crop has been picked in uniform condition. The advantage is that the



## Profit from Fruit

is increased if the fruit is borne on trees planted in soil that contains the right amount and the right kind of plant food. For such trees will yield fruit in maximum quantity and of improved quality.

### Beaver Brand Animal Fertilizers

"A fertilizer for every soil."

Gives to the soil the proper amount of nitrogen, phosphoric acid and potash that are so necessary if you want your trees to have a steady healthy growth and bear plentifully.

Not an experiment but a proven fertilizer of reputation. A trial offers convincing proof. Folder free. Address Box 101

**Union Meat Company**  
North Portland, Oregon

## Walnuts Are Dollars

Plant a Walnut Grove that will grow into dollars while you sleep. The Vrooman Franquette bears at three years and sells for 25 cents per pound—is smaller than an apple and sells for more money. Get in with the tide and get rich. At forty feet a part it only takes 28 trees to the acre. Is cheaper than an apple orchard to plant and makes your land more valuable.

True Vrooman Franquette  
Walnut Trees at Bargain Prices  
at

**Mira-Monte Nursery**  
SAN JOSE, CAL.



### An Optimist



A man who owns a **Fish Brand Reflex Slicker \$3.00**

when Old Prob says rain.

Waterproof, absolutely

Protector Hat, 75 cents

Satisfaction Guaranteed

Send for catalog

**A. J. TOWER CO.**

BOSTON

**TOWER'S FISH BRAND**

### A NEW OPPORTUNITY

IN THE WEST OKANOGAN IRRIGATION DISTRICT

9,400 acres bordering the Okanogan River will be irrigated with the completion of this project. This section combines the soil and climate of the most favored fruit growing districts of the state, with unusual opportunities for dairying and stock growing. A farm unit of 40 acres has been established and a price fixed on the excess acreage of land by the Board of Directors, which enables the homeseeker to purchase high class irrigated land at prices lower than prevailed twelve years ago in irrigated sections of Washington.

Send for our FREE publication with map and full description of country.

**F. W. GRAHAM**  
Western Immigration Agent  
Great Northern Ry.  
Seattle, Wash  
I.F.

See America First  
**GREAT NORTHERN RAILWAY**  
Glacier National Park



**HAWKEYE SHIPPING BASKET**  
FOR CIRCULAR & PRICES WRITE TO  
**BURLINGTON BASKET CO.**  
BURLINGTON, IOWA

Ask for Catalogue No. 5

### 20 Reasons Why You Should Investigate the SANDOW Kerosene Stationary ENGINE



It runs on kerosene (coal oil), gasoline, distillate and alcohol without change in equipment—starts without cranking—runs in either direction—throttle governed—hopper and tank-cooled—speed controlled while running—no cams—no valves—no gears—no sprockets—only three moving parts—light weight—easily portable—great power—starts easily at forty degrees below zero—complete ready to run—children operate them—low factory prices based on enormous put-out—30 day money-back trial—10 years ironclad guarantee. Sizes, 1 1/2 to 18 horsepower. Send a postal today for free catalog which tells how Sandow will be useful to you. No go-betweens. Pocket agents' and middlemen's commissions by dealing direct with factory. (602)

**Detroit Motor Car Supply Co.**  
238 Canton Ave., Detroit, Mich.

shipping period may begin earlier and last longer, thereby securing greater time for effecting distribution. Furthermore, if all the fruit is harvested at the same time, it is to be remembered that shipments represent extreme stages of maturity, ranging from ripe to green in the same package, and that frequently toward the end of the season overripe condition of a portion of the crop may result from failure to pick first only what is in condition for marketing. Careful handling from tree to car is necessary to prevent deterioration. It is not difficult to understand why a lot of fruit does not arrive in the market in prime condition if it is picked and piled on the ground in the hot sun, placed in packages in a heated condition, and finally hauled in wagons without covers or springs over rough roads. With proper facilities, apples picked on hot days should not be packed until the following day. For this purpose shelter should be provided in order that the fruit may be packed in a cool, dry condition. Growers who have no packing sheds should either build them or arrange to use their barn floors. Wagons should be equipped with springs and covers provided for the protection of the fruit from the weather. Culls and cider stock should be eliminated from the better grades and as far as possible diverted to cider mills, canneries and evaporators. While in short-crop years there is a fair demand for low-class apples, still by filling the autumn markets with poor stocks it is possible to obstruct seriously the disposition of the standard grades, and force into cold storage larger quantities than the conditions may justify. In general, only long keeping, standard pack apples should be placed in the coolers, though it is frequently profitable to store for relatively short periods such sorts as Grimes, Wealthy and Jonathan, for withdrawal during autumn and early winter as the demand justifies. In packing fruit for storage special care should be exercised to pick the fruit in sound condition, pack it carefully, and rush it into storage without delay. Such methods add materially to the life of the product.

Owing to geographic location, some important apple-producing states have the natural advantage of an early season. It would be folly for such states not to profit by that advantage. It is possible for growers so situated to leave their crop on the trees until the period of greatest movement, and frequently in years past they have suffered great loss by doing so. The Southern states of the apple belt should begin early and market the greatest portion possible prior to the period of greatest movement, and thereby avoid competition with the producing areas of the northern belt. On the other hand, states that go to market latest should be in no hurry to rush the markets during the period of greatest movement. In brief, the crop should be distributed throughout the longest time possible, cold and dry storages being judiciously utilized for conservation. Small towns outside

### Read my Book-See my Prices-Before you buy any ENGINE



This WITTE Engine, after 28 years, still giving good service to S. A. Stone, Chillicothe, Mo.

### WITTE ENGINES

**Kerosene, Gasoline & Gas**

You can now own a good Engine for less than you can do without one.

**LOOK AT THESE PRICES!**

2 H.P., \$34.95; 4 H.P., \$69.75; 6 H.P., \$97.75; 8 H.P., \$139.65; 12 H.P., \$197.00; Prices F. O. B. Factory.

16 H.P., \$279.70; 22 H.P., \$359.80.

Stationary, Portable, Skidded and Sawrig styles. Standard for 28 years. Why pay two prices for any good engine or take chances on a poor, or doubtful engine for any kind of a price, when the WITTE costs so little and saves you all the risk.

**LIBERAL 5-YEAR GUARANTY.**

Easy terms of payment, at regular prices, if you don't wish to pay all cash.

**Book Free** Get my Book before arranging to try any engine. Costs nothing to be sure of your selection, even if you don't pick a WITTE. Learn the inside of the engine business and how to judge engines for yourself. Write us today.

**ED. H. WITTE ENGINE WORKS,**  
1855 Oakland Ave.,  
Kansas City, Missouri.  
1855 Empire Bldg., Pittsburgh, Pa.

Send for this FREE BOOK  
**HOW TO JUDGE AN ENGINE**  
WITTE

### HONEST TREES AT HONEST PRICES

Order your trees direct from longest established, most reliable nursery in the West. Save money—avoid disappointment. 500 acres—50 years thoroughly reliable dealings. Get our list and prices before you buy a tree : : :

**THE WOODBURN NURSERIES**  
Woodburn, Ore.

### Protect Your Trees

DON'T take chances with your young trees. One rabbit will kill many in a single night. Mice and cut worms will damage and destroy them if you don't protect them. Get dollars' worth of protection at a fraction of a cent cost by using

### Hawkeye Tree Protectors

Absolute protection against gnawers and borers. Prevent trees from becoming skinned and bruised by cultivator or lawn mower. Made of elm veneer, chemically treated. Easily put on and will last until tree is beyond needing protection. Don't wait until some of your trees are killed—order Hawkeye Protectors now. Regular size 10 inches wide, 20 inches high. Price in lots of 100—1 cent apiece; in lots of 1000—1/2 cent apiece. Special sizes made to order. Write for circular and samples.

We make Fruit Baskets—get our prices.

**Burlington Basket Company**  
122 Main St., Burlington, Iowa







## Made from the right crude

The Jury of Awards at both San Francisco and San Diego Expositions found an oil made from California asphalt-base crude highest in lubricating efficiency. That oil was Zerolene. The fact, too, that such unbiased authorities as a U. S. Naval Engineer, engineers of the Packard and Ford Motor Companies, and others, have also gone on record in favor of oils made from asphalt-base crude—in accord with the decision of the Exposition juries—proves that Zerolene is made of the *right* crude, and made *right*.

STANDARD OIL COMPANY  
(California)

# ZEROLENE

*the Standard Oil for Motor Cars*

Pacific Coast Agents  
**United States Steel  
Products Co.**

San Francisco  
Los Angeles  
Portland  
Seattle



**J.C. Pearson Co., Inc**  
Sole Manufacturers

Old South Bldg.  
Boston,  
Mass.

# PEARSON

**ECONOMY** in buying is getting the best value for the money, not always in getting the lowest prices. PEARSON prices are right.

**ADHESIVENESS** or holding power is the reason for PEARSON nails. For twenty years they have been making boxes strong. Now, more than ever.

**RELIABILITY** behind the goods is added value. You can rely on our record of fulfillment of every contract and fair adjustment of every claim.

**SATISFACTION** is assured by our long experience in making nails to suit our customers' needs. We know what you want; we guarantee satisfaction.

**ORIGINALITY** plus experience always excels imitation. Imitation's highest hope is, to sometime (not now) equal Pearson—meantime *you* play safe.

# NAILS



## Write to the Men Who Know

There is a great difference in spray pumps and spraying apparatus. One kind is made by practical orchardists and has been improved through over 20 years of orchard success. Write a letter or postcard to Morrill & Morley Mfg. Co. Find out about

### Eclipse Spray Pumps

In use in more successful orchards than all other makes. Used by U. S. Department of Agriculture. Find out what Eclipse offers in more profits for orchards, vineyards or potato fields. Address Morrill & Morley Mfg. Co., Box 12, Benton Harbor, Mich.

Send for Free Catalogue

**We Have a Story for You**



of the apple belt are often poorly supplied, even in large crop years. Growers of the Middle West have taken advantage of this condition by going to such towns with cars of apples and selling on the track. In order to succeed with this method the shippers should know conditions of supply and demand in the town selected, ascertain the railway and township regulations controlling track sales, and precede delivery of the car by judicious advertising. The mayor can give information as to whether a license is required, and the railway agent as to whether track sales are allowed. Insofar as the apple grower is concerned, co-operation in distribution and marketing is highly commended as an economic system for securing judicious handling. Of course it would be impracticable for growers to organize upon the eve of crop movement, because disaster would likely result as the consequence of too little time for perfecting business arrangements. However, in communities where co-operative packing and selling agencies are operated, the growers should do all possible to strengthen such exchanges with their patronage and counsel. The disloyalty of members is the chief element of failure in co-operative circles, and apple growers are strongly urged to stand by their associations as the best way to solve the problems that are common to all.

## Apple Anthracnose or Black Spot Canker

This disease is known to occur on the Pacific Coast west of the Cascade Mountains in Oregon, Washington and British Columbia, and has more recently been reported in the south central part of Washington in the Columbia River Valley. Frequently it is the matter of inquiry by orchardists in the eastern and central parts of Washington. In

## THE COST

is given on page 4.

There are also other points of interest to orchardists.

## True-to-Name Nursery

**GALLIGAN BROS.**  
Proprietors

HOOD RIVER, OREGON DUFUR, OREGON

Growers of high grade nursery stock, guaranteed true-to-name. Breeders and importers of purebred Big Type Poland-China Hogs. Service boars, bred gilts and weaning pigs for sale. For catalog of nursery stock and prices on swine, write

## True-to-Name Nursery

HOOD RIVER, OREGON

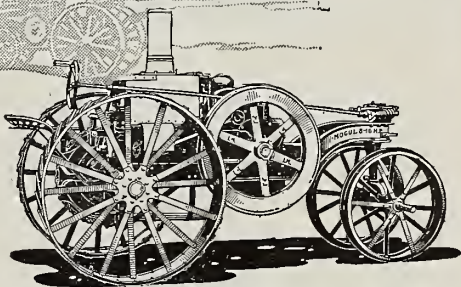
## 3 BIG BARGAINS

ENGINES, SPREADERS SEPARATORS. Highest quality. Prices about 1-3 to 1-2 less than you usually pay. 200,000 customers testify to faultless design and best material. Catalog free. Wm. Galloway Co. Box 1157 WATERLOO, IOWA.



order to acquaint the grower with the nature of the disease, its effects, and methods of control, the following statement is issued by Mr. D. C. George, assistant plant pathologist of the Experiment Station at Pullman:

Apple anthracnose, or black spot canker, manifests itself as a twig and branch canker on the apple and pear, and as a storage rot on the fruits of the apple and quince. The twig and branch form appears as dark colored, sunken areas or cankers in the bark of the younger growth. It is especially injurious on branches under two or three inches in diameter, only occasionally being found on the thick bark of the larger branches. Frequently several of these cankers coalesce and completely girdle the branch. Young trees are sometimes killed by this girdling. The young cankers begin their development in the fall, usually about the first of November. They appear on the bark as small circular spots, reddish brown to black in color. Beneath these spots a water soaked appearance is noticed, which extends to the cambium layer. During the winter months development is retarded, but becomes vigorous with the renewed activity of the host in early spring. As the spots enlarge they become elliptical in shape, more or less depressed and smooth, and the bark dries and slightly cracks at the advancing edge. The cankers are mature in size by the last of June or a little later and vary from one-quarter of an inch to six inches in length by one-quarter of an inch to five inches in width. About this time small elevations or pustules, more or less conical in shape, appear in the cankered area. Later, about midsummer, these pustules crack open and expose the spore-bearing mass of fungous tissue. In the late autumn the cankered area is separated from the healthy tissue by a slight ridge due to the formation of callus. When the



**Mogul 8-16 Oil Tractor**  
**\$675.00 Cash f. o. b. Chicago**

**T**HE small-farm tractor is here to stay. Farms even smaller than 100 acres are rapidly being equipped with **Mogul 8-16** oil tractors. Since their introduction, the great plant at Chicago has been turning out these machines by the thousands and is still behind orders.

There is only one reason for this unprecedented demand. Tractor farming pays. Horse boarders are cut down to the small number required for cultivating and the few other jobs for which tractors cannot be used. The plowing, disking, seeding and harvesting are finished without relation to the effect of weather on horses. Costs are reduced all 'round. Net farm profits are higher. Tractor farming pays well on small farms when the work is done with a **Mogul 8-16**. The longer you put off buying one, the more money you lose.

The **Mogul** and **Titan** lines include larger tractors to 30-60 H. P., all operating on low grade oil fuel, and a full line of general purpose oil engines, from 1 to 50-H. P. in size. See the local dealer who handles these machines or write us for full information.

**International Harvester Company of America**  
(INCORPORATED)



Crawford, Neb.   Denver, Col.   Helena, Mont.   Portland, Ore.  
San Francisco, Cal.   Spokane, Wash.   Salt Lake City, Utah



**BUY AND TRY**  
  
**White  
River  
Flour**  
  
**MAKES  
Whiter, Lighter  
Bread**

**Ridley, Houlding & Co.**  
**COVENT GARDEN, LONDON**

Points to remember when consigning  
apples to the London Market

- 1.—We Specialize in Apples
- 2.—All Consignments Receive our Personal Attention
- 3.—The Fruit is Sold by Private Treaty

CABLE ADDRESS: BOTANIZING, LONDON





One man with a "K" Stump Puller exerts more power than 16 horses. Can pull, single-handed, from 50 to 150 stumps per day. Rips out any stump that can be pulled by any horse-power machine, and at about  $\frac{1}{2}$  the cost;  $\frac{1}{4}$  the cost of dynamite.



## HAND POWER Stump Puller

works by leverage—same principle as a jack—power multiplied many times. Works easy as rowing a boat. Made of Krupp steel. Guaranteed against breakage.

Send for my special offer and free book on Land Clearing.

Walter J. Fitzpatrick  
Box S. 182 Fifth Street  
SAN FRANCISCO, CALIF.

## The Paris Fair

Hood River's Largest and Best Store

RETAILERS OF

**EVERYTHING TO WEAR**

AGENTS FOR

HAMILTON & BROWN AND  
THE BROWN SHOES

HART, SCHAFFNER & MARX  
CLOTHES

MANHATTAN SHIRTS

JOHN B. STETSON HATS

NEMO CORSETS

Strictly Cash—One Price to All



**Only 12c.**

(Including Postage and Packing)

FOR THIS

**Filet  
Crochet Book**

— ON —

## Yokes and Towels

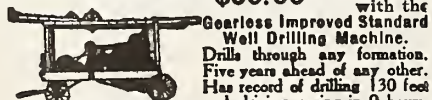
I have just published this book of new creations—over one hundred of the newest, most beautiful and practical designs for working **Cross Stitch** or **Filet Crochet**.

My Book Contains Complete Instructions With Handsome Illustrations.

Send me 12c. in postage stamps or 10c. in silver and one 2c. stamp and I will send a copy prepaid.

Pearl LeMonde, 531 Publicity Bldg. St. Louis, Mo.

**YOU CAN EARN \$50.00 PER DAY**



with the Gearless Improved Standard Well Drilling Machine. Drills through any formation. Five years ahead of any other. Has record of drilling 130 feet and driving casing in 9 hours. Another record where 70 feet was drilled on 2 1/2 gal. distillate at 9c per gal. One man can operate. Electrically equipped for running nights. Fishing job. Engine ignition. Catalogue W. R. REIERSON MACHINERY CO., Manfrs., Portland, Ore.

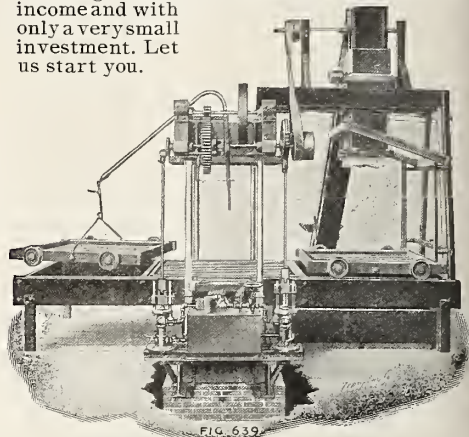
canker becomes old, usually the second year, the bark cracks away from the edges, becomes loose and drops out, leaving unsightly scars. As stated previously, the disease is known to cause a storage rot of the fruit. It first appears on the surface as small, light brown, circular spots of rotting tissue. These spots generally enlarge and later change to very dark or black, eventually becoming dry, depressed and rather tough. Pustules similar to those formed in the cankers soon develop, quite commonly making their appearance in concentric circles.

Anthraxnose is caused by a parasitic fungus known as "Neofabraea malicorticis." It produces two kinds of spores or reproductive bodies. The summer spores, or conidia, are formed during the first year of the development of the canker. They are mature by late summer or fall and are ejected in a gelatinous mass from each of the small pustules found on the cankers. These spores are readily separated by water, rain, dew, or certain summer sprays serving as agents in this respect. On being liberated they are scattered by various agencies and each one is capable of producing a new infection. The winter spores, or ascospores, are developed the second year, within small club shaped structures borne in disk-like bodies that occupy the position of the pustules of the previous season. Following the fall rains these spores are discharged with force and are carried away by the wind. Like the conidia, upon germination they are capable of producing new infections. It has been found that conidiospores are also developed from old layers around the edges of the pustules producing the ascospore stage and also in the bark of cankers three years old. If the bark drops to the ground at the end of the first year, the winter spores may be developed in such bark on the ground.

Thorough spraying and pruning are essential in order to control the disease. The spraying should be done immediately after the fruit is picked, as at this time the spores are most abundant and new infections most likely to take place. The 6-6-50 bordeaux is recommended. If the fall rains begin early and the trees are harboring old cankers an additional spraying about three weeks later is advisable. Too much emphasis cannot be placed on thorough pruning. It is advisable, where possible, to do this before the first spraying. All small twigs and branches showing any signs of the disease should be removed. Old cankers on the larger branches should be cut out without fail, as they are very serious sources of spore production, and the wounds should be protected in order to keep out wood-rotting fungi and insect pests. The cut edges of the bark and the cambium should be painted with shellac, and as soon as this dries the entire wound may be covered with coal tar or any good paint. The prunings and all bark removed from the cankers should be burned.—Washington State Experiment Station Bulletin.

## Save the Culls and Off-Grade Apples

In your community by converting them into cider, apple butter, vinegar, etc. There is big money in this business, besides it gives you the satisfaction of running a good profitable business of your own. Our presses are assisting thousands of men to a comfortable income and with only a very small investment. Let us start you.



We manufacture Evaporators, Apple Butter Cookers, Vinegar Generators, Cider and Vinegar Filters, etc. Let us tell you all about "Mount Gilead" outfits and how you can put good profits in your pocket by their use.

**THE HYDRAULIC PRESS MFG. CO.**

60 Lincoln Ave., Mt. Gilead, Ohio.

Pacific Coast Representatives

**THE BERGER & CARTER CO.**

17th and Mississippi Sts. San Francisco, California

Grand Prize and Gold Medal at

Panama-Pacific Exposition.



## TRAPPERS

**Furs Have Advanced**

Ship to Rogers. We give liberal grades, full value in cash and quick returns. We have best market in America for Furs, Hides, etc. No commission. Write today for free price list. **Trappers' Supplies at Factory Prices**  
ROGERS FUR COMPANY, Dept. 290 St. Louis, Mo.



**GUARANTEED**

## "The Farmer's Friend"



Ask your Dealer



**Keep Cider Sweet.**

Cider may be kept either perfectly sweet or with whatever "bead" the taste of the user suggests, according to Miss Carrie Pancoast, of the Missouri College of Agriculture. It may be canned immediately or allowed to stand for a few days, but in either case the method used includes filling fruit jars with the cider and adding a tablespoonful of sugar to each quart, if desired. Place the rubber and top in position and tighten partially, in case of glass jars; or if tin is used, cap and tip the cans. An ordinary washtub or similar vessel may be used in sterilizing. Laths or thin boards should be laid across the bottom to avoid heating the glass too rapidly and cracking it. Put in water enough to fill the vessel an inch or two above the jars, heat to boiling, put the jars in, and let the boiling continue for ten minutes. Then remove, tighten the covers, and invert in order to test the lids while cooling. Other processes that may be used involve sterilizing for eight minutes with a water seal outfit, for four minutes under five pounds' pressure with a steam pressure outfit, or for two minutes with an aluminum pressure cooker.

**Winter Injury to Fruit Trees.**

A great many inquiries have come to the horticultural division of the Experiment Station asking for information about treatment of winter injured trees. There are two forms of winter injury more common than others. In the first the bark is killed directly, and it often splits on the trunk and larger limbs and turns dark brown on the smaller branches. The surface bark on the small limbs is often raised, as if blistered. This may occur in small circular or irregular areas, or the entire limb may be affected. The small limbs

Established 1881

Page & Son

120 and 122 Front Street

PORTLAND

Oldest Established

Wholesale Fruit and Produce

Commission Merchants

FRUIT GROWERS

Dehydrate Your By-Products

It gives you a high grade quick selling product at a minimum cost. It makes a clean and natural tasting product. Dehydrated fruits and vegetables have been approved by the U. S. Government, while desiccated, dried and evaporated products have been rejected. There is but one Dehydrator manufactured in the West and it is the best By-Product machine ever devised. It is adapted to the individual grower, as it can be constructed to meet any and all requirements. It is fully covered by U. S. patents. Therefore, you are protected in its use.

The manufacturers of this Dehydrator have recently patented new and improved automatic labor-saving preparatory machinery which will further reduce the present low cost for the production of this product.

For new descriptive booklet address

LUTHER MANUFACTURING CO.

San Francisco, California

YAKIMA FRUIT SELLERS

North Yakima, Washington

Central Selling Agency for Yakima

EXCLUSIVE DISTRIBUTORS FOR

Yakima County Horticultural Union

Yakima Fruit Growers' Exchange

Richey & Gilbert Company

Our organizations handled 2,500 carloads of Yakima Fruit last season. Hundreds of growers have joined our movement and we already have under contract a much larger proportion of Yakima tonnage than ever before. Additional tonnage is coming to us daily. We have a large proportion of the fruit in the early districts—therefore we can load the early assorted cars—money-makers for the trade and the growers.

WRITE OR WIRE US IN SEASON

H. M. GILBERT, General Manager,

FRED EBERLE, Asst. Manager

HOOD RIVER VALLEY NURSERY COMPANY

Phone 5634

Route No. 3, Box 227

HOOD RIVER, OREGON

Plantation four miles southwest of station, Belmont Road

We will be pleased to show you trees, apple trees that have a heritage, a quality that should be considered by everyone who plants a tree. Our trees are grown in clean hillside virgin red shot soil with clay subsoil, producing the most vigorous root system. Our buds are selected from the best bearing healthy Hood River trees that make the Hood River apple famous throughout the world. Our trees will give you satisfactory results in vigor, fruit and quality. Ask for catalog. We guarantee our products. Apples, pears, peaches, apricots, almonds and walnuts. A complete line of the best varieties of all kinds of fruits.

H. S. BUTTERFIELD, President

W. J. ENSCHEDE, Manager

Our Special Clubbing Offer

"Better Fruit" offers to its readers a splendid clubbing list. These rates do not apply to Canada, owing to extra postage.

Through lack of space we are unable to give a more extended clubbing list. If this clubbing list does not meet your requirements, please make up a clubbing list that you desire, send it to us and we will advise you what the list will cost you.

Everybody's .....	\$1.50	Hoard's Dairyman .....	\$1.00
Delineator .....	1.50	Review of Reviews .....	3.00
Better Fruit .....	1.00	Farm Journal (5 years) .....	1.00
		Better Fruit .....	1.00
Total .....	\$4.00		
All for .....	2.75	Total .....	\$6.00
		All for .....	3.70
Outlook .....	\$3.00		
Scribner's .....	3.00	Ladies' World .....	\$1.00
World's Work .....	3.00	Modern Priscilla .....	1.00
Better Fruit .....	1.00	Pictorial Review .....	1.00
		Better Fruit .....	1.00
Total .....	\$10.00	Total .....	\$4.00
All for .....	6.45	All for .....	2.75
Scribner's .....	\$3.00		
Delineator .....	1.50	American Swineherd .....	\$ .50
Everybody's .....	1.50	Everybody's .....	1.50
Better Fruit .....	1.00	Oregon Agriculturist .....	.50
		Better Fruit .....	1.00
Total .....	\$7.00	Total .....	\$3.50
All for .....	4.50	All for .....	2.60
American Magazine .....	\$1.50		
Woman's Home Companion .....	1.50	Fruit Grower and Farmer .....	\$1.00
Better Fruit .....	1.00	Good Housekeeping .....	1.50
		Better Fruit .....	1.00
Total .....	\$4.00	Total .....	\$3.50
All for .....	2.15	All for .....	2.60
Woman's Home Companion .....	\$1.50		
American .....	1.50	Northwest Poultry Journal .....	\$ .50
Better Fruit .....	1.00	Gleanings in Bee Culture .....	1.00
		Review of Reviews .....	3.00
Total .....	\$4.00	Better Fruit .....	1.00
All for .....	2.80	Total .....	\$5.50
Aeronautics .....	\$3.00	All for .....	3.40
Good Housekeeping .....	1.50		
Better Fruit .....	1.00	Pacific Homestead .....	\$1.00
		Delineator .....	1.50
Total .....	\$5.50	Better Fruit .....	1.00
All for .....	4.30	Total .....	\$3.50
Motion Picture Magazine .....	\$1.50	All for .....	2.60
American Boy .....	1.00		
Better Fruit .....	1.00	Western Farmer .....	\$1.00
		Harper's Bazaar .....	1.50
Total .....	\$3.50	Everybody's .....	1.50
All for .....	2.80	Better Fruit .....	1.00
Automobile Journal .....	\$1.50	Total .....	\$5.00
Scientific American .....	3.00	All for .....	3.75
Better Fruit .....	1.00		
Total .....	\$5.50		
All for .....	4.70		



# "BLUE RIBBON"

(EXTRA FANCY)

# "RED RIBBON"

(FANCY)

## Quality Brands of Yakima Apples

When ordering apples specify Blue Ribbon Brand and be assured of the best the market affords. All apples packed under our personal supervision and inspection.

WRITE FOR INFORMATION  
AND PRICES

## Yakima County Horticultural Union

FRED EBERLE, Manager

NORTH YAKIMA, WASHINGTON

should be cut away and the split bark covered with grafting wax or bound down with strips of burlap or cloth. This should be done as soon as the injury is noticed. The second form of injury is usually not noticeable until growth starts, unless the inner bark is examined. This is usually yellow or light brown. The growth of the tree is late in starting and then the side buds develop only small, slender leaves. The side buds on the previous summer's growth of wood often fail to start growth, or after starting die before the first leaves unfold. The bark often remains green through the summer and dies the following winter. All branches that fail to start, and those that make a very poor growth, should be cut away early in the season. The best cultivation and care possible should be given to enable the tree to recover normal vigor. Excessive pruning often does more harm than good. Plant some crop in the orchard in midsummer, or cease cultivation and irrigation early enough to cause the trees to thoroughly ripen their wood before cold weather occurs. —Washington State Experiment Station Bulletin.

## Coming Events

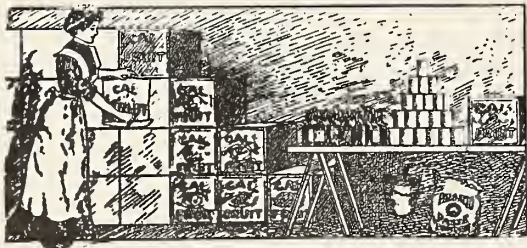
Arizona State Fair, Phoenix, Arizona, November 8 to 13.

Cascade International Stock Show, North Yakima, Washington, November 22 to 27.

Lewiswton Livestock Show, Lewiston, Idaho, November 29 to December 4.

Pacific International Livestock Exposition, North Portland, Oregon, December 6 to 11.

## Paste for Labeling—"Palo Alto" Paste Powder



added to cold water, instantly makes a beautiful, smooth, white paste. Ready for immediate use at a cost of 10 cents a gallon. No labor. No muss. No spoiled paste.

PASTE SPECIALISTS

Robinson Chemical Works

349-351 Eighth Street

San Francisco, California

# Arcadia Irrigated Orchards

THE LARGEST AND MOST SUCCESSFUL ORCHARD PROJECT  
IN THE ENTIRE WEST

7,000 acres planted to winter apples. Gravity irrigation. Located 22 miles north of Spokane, Washington, directly on the railroad. We plant and give four years' care to every orchard tract sold. \$125, first payment, secures 5 acres; \$250, first payment, secures 10 acres; balance monthly.

SEND FOR BOOKLET

## Arcadia Orchards Company

Deer Park, Washington

# SEE CALIFORNIA AND HER TWO GREAT EXPOSITIONS NOW

California is this year holding two great universal Expositions, one at San Francisco and the other at San Diego, in celebration of the completion of the Panama Canal and the joining of the Atlantic and Pacific Oceans. These two Expositions represent an expenditure exceeding one hundred million dollars. To supply the demand for reliable and authentic information on these Expositions and California, we have published two beautiful books; one on San Francisco, the Exposition and Northern California; the other on Los Angeles, San Diego, the Exposition and Southern California; also a lithographed view of San Francisco in colors (size 30x45 inches), a picture of the rebuilt city, including the Exposition. Each book is 6x9 inches, contains nearly 200 pages and many beautiful illustrations.

These two books and large bird's-eye view give a comprehensive, honest history and description of the state, her principal cities, resources and her two great Expositions. Sent prepaid for 35 cents each or all three for a one dollar bill, money order, draft or check. Order now, addressing

North American Press Association,  
Publishers,

1420 Hearst Building, San Francisco.



SHIP YOUR APPLES AND PEARS TO THE PURELY COMMISSION  
AND ABSOLUTELY RELIABLE HOUSE

**W. DENNIS & SONS, Ltd.**

LONDON AND LIVERPOOL

REPRESENTED IN NEW YORK BY

**DENNIS, KIMBALL & POPE, Inc.**

202 FRANKLIN STREET

From whom all information as to shipping can be obtained

*To Readers of  
"Better Fruit"*

If you are at all interested in newspapers and magazines or farm publications, you should have a copy of

**Nelson Chesman & Co.'s  
Newspaper Rate Book**

for the issue of 1915-16  
JUST OFF THE PRESS.

IT GIVES YOU an opportunity to study newspapers and magazines, learn their rates, their history, their politics, their circulation and various other data. Over 500 pages listing and describing all of the principal newspapers, magazines, weeklies, religious lists, farm papers, mail-order lists, etc., of the United States, Canada, and the United States' possessions beyond the seas.

*Special Rate will be made to  
"Better Fruit" readers  
Write at once*

NELSON CHESMAN & CO.  
1127-29 Pine St., St. Louis, Mo.

**The War is Over**

Who Won, England or Germany?

**Neither**

BUT THE ENGLISH WALNUT—IN THE

**Vrooman Strain Franquette**

—Won as to its Adaptability to the Soil and Climate of the Northwest.

We carry a full line of both Second Generation and Grafted Trees.

Also a full line of fruit trees, ornamental trees and shrubbery, and have added many new specialties. We are in a position to supply the fruit grower with his needs.

Always room for one more good salesman.

**Capital City Nursery Company**

SALEM, OREGON

LESLIE BUTLER, President  
TRUMAN BUTLER, Vice President  
C. H. VAUGHAN, Cashier

Established 1900

**Butler Banking Company**

HOOD RIVER, OREGON

Capital . . . . . \$100,000.00

4% Interest Paid in our Savings Department

WE GIVE SPECIAL ATTENTION TO GOOD FARM LOANS

If you have money to loan we will find you good real estate security, or if you want to borrow we can place your application in good hands, and we make no charge for this service.

THE OLDEST BANK IN HOOD RIVER VALLEY

**Store Your Apples  
in Spokane**

The Natural Storage Center

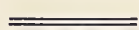
Take advantage of storage in transit rate and the better market later. Write us for our dry and cold storage rate and information.

**Ryan & Newton  
Company**

SPOKANE, WASHINGTON



# The World



# Our Orchard

**I**N ALL FIELDS OF ENDEAVOR no work is more worthy of recognition than that of the salesman. To be successful these pioneers of commerce must possess attributes which would bring world wide recognition to men in other walks of life.

The salesmen of our country are largely responsible for the development of the great industries which are the bulwark of the nation. Most leaders of business were at one time salesmen; nearly every self-made man has served on the firing line of salesmanship. No house in the trade had humbler beginnings than the firm of

## Steinhardt & Kelly

Built upon the fundamental principles of

### Honor, Honesty, Strength and Service

which are the foundations of all successful business enterprises, the house of

## Steinhardt & Kelly

stands today preeminent at the very top of the fruit industry of the United States.

# Our Market



# The World